

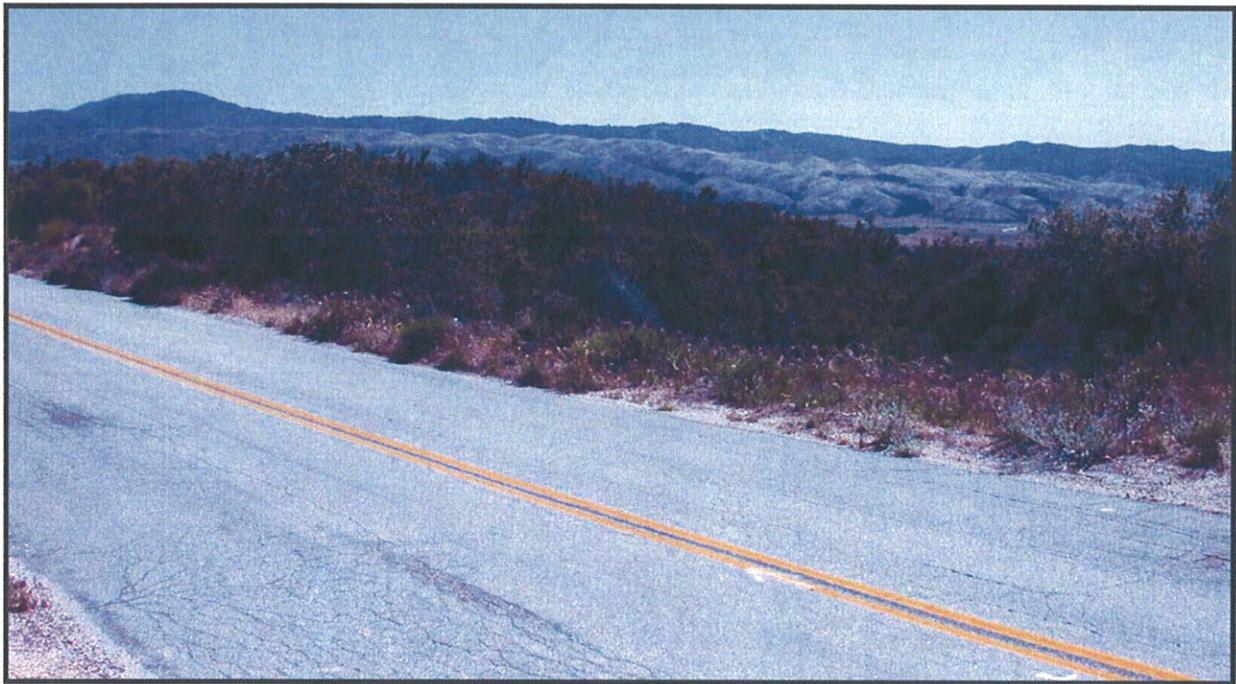
Conceptual

Fire Protection Plan

for the

Highlands at Warner Springs

**Tract #5450
SPA 06-001
APN 137-090-37
ER 8104006A**



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by*
HUNT RESEARCH CORPORATION
*Post Office Box 291 • Solvang, California 93464
(805) 688-4625
www.huntresearch.com*

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1. Introduction:

This document is intended to serve as a Conceptual Fire Protection Plan for the Highlands at Warner Springs Development, in Warner Springs. This is Tract # 5450, SPA 06-001, APN #137-090-37. The Thomas Guide Page is 409-K-8. This plan is required by the County of San Diego Department of Planning and Land Use Fire Marshal. This plan responds to the requirements of Article 86 of the 2001 California Fire Code, which requires a Fire Protection Plan for all new development in the Urban Wildland Interface. In addition, it fully complies with the San Diego County Fire Code Wildland Urban Interface (WUI) requirements, and the International Urban Wildland Interface Code.

This plan was prepared by Jim Hunt; Hunt Research Corporation. Fire Spread models were generated by Scott Franklin; Scott Franklin Consulting.

This plan includes the recommendations and opinions of the consultant and also includes all County Fire Code WUI requirements. When this plan is approved by the DPLU Fire Marshal, implementation of the plan would become an agency requirement.

This revised plan responds to, and resolves, all comments and issues raised by the DPLU Fire Marshal in his letter of April 20, 2006.

Note that the Appropriate Fire Authority Having Jurisdiction is the County Fire Service Coordinator's Office (County Fire Marshal).

2. Project Description:

The Highlands at Warner Springs development consists of a 28-lot split on a 149.72 acre parcel for future residential homes on lots averaging 5.5 acres. Minimum parcel size is 5 acres. Zoning is for 1 DU per 2-acre parcel. . It is situated within the unincorporated portion of San Diego County, known as Warner Springs. It is on Los Coyotes Road, beginning at the intersection of Camino San Ignacio and Camino Ortega. Camino San Ignacio is accessed from Highway 79 about ¼ mile from the entrance to Warner Springs Ranch. This development is part of the implementation phase of the Warner Springs Ranch Specific Plan # 83-01, which was approved by the County Board of Supervisors in 1983. This development was approved for 35 rural residential lots. The current project proposes 28 lots.

The property is currently served by the California Department of Forestry Warner Springs Station. This CDF station is staffed 24/7 year around with a Type 111 fire engine and 3 firefighters, via an Amador Plan funded by the County. . The County DPLU Fire Marshal's letter of 4-20-06 states *"the project is not in a public fire jurisdiction and does not meet the Public Safety element criteria of the General Plan."* The letter goes on to state *"the applicant must bring forward an acceptable solution to funding year-around structural fire protection, that includes adequate personnel, apparatus and facilities"*.

Los Coyotes Road is an existing paved road, which runs through the middle of the development from Camino San Ignacio to the continuance of Camino San Ignacio at the beginning of the Los Coyotes Indian Reservation. The length of the portion of the road, which is within the subdivision, is 5,450'.

Currently, per the biologist, the predominant vegetation is red shank chaparral over 6' high (fuel model 4), granitic southern mixed chaparral, non-native grassland, and dense coast live oak woodland. Elevations range from the lowest building pad at 3,370' elevation to the highest pad at 3,690'.

Prior to development, slopes vary up to 25%+. The local California Department of Forestry Fire Station crew reports winds of up to 60 MPH can occur during winter and fall.

3. Fire Department Response:

The California Department of Forestry Warner Springs Station serves the site. This station is staffed by a Type 111 engine with 3 firefighters 24/7; year around (Amador Plan). The entrance of the development is about 1.5 miles from the CDF fire station. The estimated driving time at 30 MPH is 3 minutes. The CDF provides Emergency Medical Services at the level of Basic Life Support rather than paramedic (ALS). Paramedic support comes from Mercy Ambulance co at the Santa Isabel Indian Reservation.

The current first-due responder to a medical emergency in this area is the Warner Springs California Department of Forestry (CDF) station and Mercy ambulance. There is or was a Volunteer Fire Department at the Warner Springs Ranch. Their reliability/availability of response is/was questionable due to the fact that this is a small, private, volunteer fire department with a small staff. The Fire Chief stated in an email to the author of this plan, on 6-29-06, that they are not capable or staffed to respond to this development at this time. According to the Heartland dispatch center, on occasions, they have dispatched them on calls and there was no response. This is not meant to be a reflection of anyone's skill levels or experience. It has to do with availability, funding, and staffing. E-mail received on 11-22-06 from Ralph Steinhoff, DPLU Fire Service Coordinator, indicates that the Warner Ranch Volunteers have "disbanded". The first reliable responder, due to 24/7 year around staffing, will be the Warner Springs CDF fire company, which is now staffed year around with at least 3 on-duty Firefighters.

The current first-due responder to a vegetation fire would be the CDF. CDF would send 10 engines, 4 hand crews, and air attack from Ramona consisting of a tanker and 2 helicopters. In addition, the Forest Service is available from the Oak Grove and Lake Henshaw Stations. There are also 5 inmate hand crews in Warner Springs at Porta La Cruz camp.

The current, initial, first alarm response to a structural fire in this area would be the CDF Warner Springs Fire Station, supported by other fire companies and agencies based upon who is dispatched. .

The second in CDF engine is from Witch Creek at Julian Highway and Highway 78.

Fire Stations:

The distance from the CDF Fire Station substantially complies with national insurance industry standards (1.5 miles) and national response time standards (4 minutes driving time to 90% of all calls). The national standard is to arrive at 90% of all structure fires in 4 minutes driving time.

The DPLU states that the appropriate "Fire Authority Having Jurisdiction" is now the County Fire Service Coordinator's office (County Fire Marshal).

As previously stated, the DPLU Fire Marshal is requiring that this applicant bring forth an acceptable solution to funding year around fire protection including adequate personnel, apparatus and facilities. Therefore, it is proposed by applicant that an annual fee of \$400-\$600.00 per residence be imposed on each residence in this development, and paid to the County via some legal mechanism such as a Community Facilities District (CFD). This is in addition to the

Fire mitigation fee set by ordinance at time of building plan submission. The money is passed through to the local fire agency. In this case, it is assumed that the mitigation fee would go towards funding the CDF Amador plan, along with the annual fee from the residences (\$400-600. per residence X 28 residences; \$11,200. to \$16,800). The funding should be considered as the total amount of funding which this tract is responsible for. It is not feasible or equitable for this tract to fund the entire cost of local fire protection, as others also benefit from the fire protection.

The Warner Springs Ranch Fire Department has stated they cannot adequately serve this development. Therefore, the delivery system recommended by the consultant for this development is a CDF Schedule "A" year around guaranteed local staffing of three on-duty firefighters, 24/7 and apparatus, at the CDF Warner Springs Fire Station. This station would be staffed at all times and would not remain vacant due to a response to emergencies out of the area. In the interim, until funding is available for the Schedule "A" program, the current Amador program should continue to be funded by the County. The current Amador contract has 2 years remaining, however, it is predicted by the consultant that the County will most likely continue to fund this program unless there is a significant economic downturn. At the time the current Amador contract expires, the County DPLU fire service coordinator will make the determination whether to continue the Amador plan or fund a "Schedule A" program, based upon available County funds, fair share funding, and other applicable factors.

4. Fire History:

There is no known significant fire history on the development site. The Cedar Fire, Pines Fire or Coyote Fire did not reach the site. There was a fire near the site on October 28, 2006. That fire burned 80 acres and was slope driven rather than wind driven. Winds were calm the day of the fire. The CDF Warner Springs Captain estimated flame lengths for that fire at 25'. The fire burned in Red Shank and Manzanita. One structure was damaged due to ignition from a cypress tree. The last major fire, per the Warner Springs Ranch Fire Chief, was reportedly prior to 1950. Based upon the amount of vegetation on this site, it does not appear that it has burned in the last 10 years. Old age class fuels with a high dead to live ratio present the potential for a significant vegetation fire, especially in wind driven Santa Ana conditions.

5. Risk Assessment/Fire Spread Models:

BEHAVE fire spread models were generated by Scott Franklin. Weather data used is from the RAWS site at Pine Hills; 20 miles south of the project, at 3,443'. The project is at 3,370' to 3,690' elevation. Wind data was from discussions with the CDF crew at the local station. The BEHAVE 3 system was used. The model chosen was Fuel Model 4, chaparral, due to the heavy, 8' high, red shank on site

INPUTS FOR THE MODEL

Summer Fire; 6-30-03	Fall, Cedar, Fire; 10-26-03	High Wind Fall Fire
1 hour fuel; 2%	1 hour fuel; 4%	1 hour fuel; 2%
10 hour fuel; 2%	10 hour fuel; 4%	10 hour fuel; 2%
100 hour fuel; 2%	100 hour fuel; 4%	100 hour fuel; 2%
Live fuel moisture: 75%	Live fuel moisture: 65%	Live fuel moisture; 55%
Air temp; 91 degrees f	Air temp; 96 degrees f	Air temp; 96 degrees f
20' wind speed; 6 mph	20 ft wind; 9 mph	20 ft wind; 60 mph

OUTPUTS OF THE MODEL

Summer Fire; 6-30-03	Fall Fire; 10-26-03	High Wind Fall Fire
Rate of spread: 0.75 mph	Rate of spread; 1.2 mph	Rate of spread; 22 mph
Flame length; 20'	Flame length; 24'	Flame length; 94'
Spotting distance: 0.3 miles	Spotting distance; 0.5 mile	Spotting distance; 4.6 miles

The worst-case fire spread model is Fuel Model 4, which is heavy red shank chaparral. Because of the recent drought, there exists a high dead to live fuel ratio in the chaparral, which appears to be at least 30% dead fuel. This will create a serious fire condition if winds are above 10 mph. The worst-case wind driven fire in a Santa Ana condition will come from the north/northeast on to the development. This would spread into the chaparral. Fire could then spread from chaparral into other onsite vegetation. The second potential is a fire coming from the direction of the ocean onto the west portion of the development. Once a fire moves onto the site, it can spread (spot) due to wind and spread throughout the development, igniting ornamental vegetation, and natural vegetation.

BEHAVE fire spread models provide estimates of fire behavior. They are a guideline, which must be used with judgment and fire experience to determine the actual recommended size of a fuel modification zone. Actual fire behavior may be more or less intense. However, the recent fire validated the outputs of the fall fire, 10-26-03, model generated for this development, and indicated that the fall low wind model was very accurate for the fire on 10-28-06, per telecons with Ralph Steinhoff DPLU Fire Service Coordinator, and the CDF station Captain, regarding the fire.

6. Defensible Space and Vegetation Management Zones:

Based upon the fire history, fire risk assessment, onsite inspection, review of maps and aerial photos, and generation of the BEHAVE models, the following vegetation management recommendations are provided with the objective of protecting structures from ignition due to a vegetation fire. These recommendations apply to all properties on which there are structures. Vegetation Management Zones are required for each lot. The zones begin at the structure and extend out on all sides to the unmodified vegetation. Vegetation Management Zones must be installed at time of construction and shall be maintained annually, prior to May 1, and more often as needed, on an ongoing basis. Two zones are recommended within the total size of the Vegetation Management Zones.

A total of 200' vegetation management is needed in all directions from all structures. In addition, a 100' zone is needed on each side of the common roads.

The result is that the entire development, all lots, and all main roads will have a Vegetation Management Zone around them. The result is that, conceptually and substantially, most of the entire onsite property will have fuel modification. Therefore the majority of natural vegetation on site will be either removed or significantly modified, per detailed analysis and drawings produced by the project engineer, in order to illustrate the conceptual recommendations in this plan (refer to the Fuel Modification Drawings in the Appendix of this plan). The result is that this development may even provide a good fuel modification buffer for local Warner Springs properties downwind. Due to the extensive fuel modification and the approved secondary access, as well as the enhanced building construction features and fire sprinklers, a Safety Zone would be redundant. Safety Zones may be necessary in developments where there is inadequate fuel modification, inadequate construction features, and there is no approved secondary ingress/egress, which is not the case with this development.

Whenever possible, building pads will be located with the objective that Vegetation Management Zones will be confined to the affected lot. Where possible, Vegetation Management Zones will be contiguous with adjacent Vegetation Management Zones. If zones extend beyond private lots, the Homeowners Association, or other responsible entity, will be responsible to assure that the vegetation management requirements of this plan are implemented on an ongoing basis. It is understood that Vegetation Management Zones cannot legally extend beyond the development, or the private lot, without an easement. A Homeowners Association must be created to assure that the recommendations in this plan are implemented on an initial and ongoing basis throughout the development on private lots and common areas.

A. Criteria for Vegetation Management Zones:

Every structure is to have Vegetation Management Zones around it. Zones extend in all directions from the structure.

1. Zone A: Irrigated Wet Zone (0-50')

The closest 50 feet to the structure is critical for fire safety. The plantings and structural accessories within this area need to be properly chosen, fire resistive, properly placed,

and well maintained in order to provide fire safety and limit the possibility of transmission of fire to the house from the surrounding landscape. No undesirable plant materials (see list in Section 6-I of this plan) are allowed in Zone A. No dry grasses are allowed in Zone A. No Red Shank. No acacia, eucalyptus, palm, juniper, cypress, conifer, (including pine and cedar), pepper, olive, camphor, bottlebrush, pampas grass, chaparral, sage, sagebrush, salvia spp, chamise, coyote bush, California buckwheat or manzanita.

Ground cover should be less than 3" high. Irrigated grass may be 4" high. Bedding plants, shrubs and flowers must be fire resistive, drought adaptive, low profile, low dead to live fuel ratio, high leaf moisture, low fuel volume, low oil content

Decks, patio covers, furnishings, fences and accessories should be non-combustible or a minimum of 1-hour rated construction. No firewood, propane tanks (other than small barbecue tanks) or other flammables may be stored in this zone. Leaf litter should be removed from the roof and rain gutters of the structure every year before fire season.

Plants in this area need to be the slowest to ignite and should produce the least amount of heat if they do burn. This can be pursued through proper placement, irrigation and maintenance of fire resistive, low profile plant materials.

No trees within 15' of a structure. One tree allowed between 15 and 30'. No canopies within 10 feet of the structure. Remove any branches overhanging the roof. Allow at least 10 feet between vegetation and a chimney.

Landscape plants should be arranged in a mosaic so as not to create pathways for a fire. Eliminate weeds and non-native grasses. Single specimen trees, and tree groups of no more than 3 trees, are allowed beyond 30' but should be spaced 30 feet between mature canopies of groups or individual trees. Shrub groups and plant groups should be spaced 20 feet apart. Provide 20' between shrubs and drip line of trees. Shrubs and plants should be less than 18" high, and spaced 2 times height apart between mature canopies on slopes less than 20%, 4 times height apart on slopes 21-40%, and six times height apart on slopes over 40%.

The performance objective is to limit the potential for a fire in vegetation to spread from open space or beyond a private lot to a structure, by controlling the type of vegetation present and by eliminating unbroken fuel beds and paths for a fire to spread through vegetation, trees, or from plant to plant, etc.

Foundation plantings are allowed, but any plants placed at the foundation must be irrigated, fire-resistant species, no higher than 18 inches, and well maintained. Limit or eliminate planting beneath windows, near doors, and under roof vents.

In order to limit the possibility of flames climbing into an over story of trees and shrubs, fire ladders must be minimized. Limb up lower tree limbs should be removed up to 1/3 height of tree or 6 feet whichever is greater. Avoid planting shrubs or plants under trees. No hedges, or any plant material prohibited in this plan, are allowed in Zone A.

Plantings in Zone A may be drought resistant, but must receive irrigation to increase their moisture content and decrease the dry or dead fuel loads. Additionally, plantings in Zone A must be maintained continuously throughout the year. No dead or down material is allowed within this zone. All plants must be trimmed as necessary to retain proper spacing.

2. Zone B: Dry, Non-Irrigated Thinning and Transition Zone (beyond 50' from structure out to 200')

Zone B is a non-irrigated thinning and transition zone due to water conservation issues. It begins at 51' from the structure and extends out to 200' in all directions from each structure. Any newly planted landscaping will require ongoing irrigation unless they are approved, fire resistive, drought tolerant native species, such as approved succulents, or toyon, ceonothus, coastal live oak, or englemann oak. For these species/plants, temporary irrigation may be needed for 3 to 5 years. Individual, well spaced specimens such as manzanita, mountain mahogany, and red shank may remain if limbed up 1/3 height or 6', trimmed, and maintained. No vegetation found on the prohibited plant list in this plan may be used. A qualified landscape architect should be consulted to determine the proper, fire resistive, plants to use.

In Zone B significantly separate, thin, limb up and prune all existing flammable vegetation. Break up any continuous fuel beds. Remove all dead fuel from vegetation. Keep any grass and groundcover mowed to 4". Limb up trees to 1/3 their height or 6', whichever is greater. This will break the contact between ground and aerial fuels (remove ladder fuels). Provide 20' between large shrubs and trees. 40' between mature tree canopies. Break up mature tree canopies in order to create adequate separation between mature tree canopies as specified in this plan. No shrubs or plant are allowed under trees.

No undesirable plant materials (see list in Section 6-I this plan) may be planted or remain in any zone. Existing Coastal Live Oak trees can remain if properly limbed up and spaced per the recommendations for trees in this zone, with no vegetative understory under trees. Some native brush and other vegetation can remain if properly maintained, cut or mowed to 8" in height, and separated with no dead fuel component. Separate any mosaics of flammable brush. Spacing between any plantings of bushes, shrubs and plants to be the same as recommended for Zone A. Remove all thinned, pruned, and dead debris from the property. A certain amount of naturally occurring vegetation in Zone B, is needed to help maintain erosion control, soil stability, but must be thinned, modified, kept to a low height, well spaced, and maintained. Shrubs to have a low profile to limit flame height and fire spread.

No dry grass, acacia, eucalyptus, palm, juniper, cypress, conifer (including pine and cedar), pepper, olive, camphor, bottlebrush, pampas grass, chaparral, sage, sagebrush, salvia spp, chamise, coyote bush, California buckwheat or manzanita. Any groves, orchards, vineyards shall have proper vegetation management and irrigation.

It is recommended that each entire perimeter private lot be maintained in a fire safe condition by limbing, pruning, cutting and removal of flammable vegetation to help

prevent fire spread from open spaces or offsite to homes. Erosion control and soil stability must be provided in all fuel modification zones.

It will be important to provide an ongoing public education program for all residents so that they grasp the alternative protective action concept of sheltering in place in their residence, if caught outside away from their homes, instead of evacuation when evacuation may be too dangerous. This will be the responsibility of the Homeowners Association and will include classes, handouts, and annual public education by the local CDF firefighters prior to fire season. It will also be necessary for the Homeowners Association and residents to assure that all recommendations and requirements in this plan are properly maintained on an ongoing basis, including building construction, fuel modification, landscaping, and maintaining the water supply and water storage tank systems, and internal fire sprinkler systems, in a state of operational readiness at all time, including full water tanks. An annual inspection, by an approved wildfire consultant funded by the HOA, shall be conducted annually to assure compliance with this plan and all requirements. The results of such inspection shall be submitted to the DPLU Fire Marshal and the local CDF Fire Captain.

A written program which provides criteria and guidelines for sheltering in place, or evacuation if there is sufficient lead time to safely evacuate using the normal routes of travel, shall be submitted to the local CDF Captain for review and comment. All residents would then be educated in the program and the materials. Such program may use materials developed for other communities regarding sheltering in place, if the material would be applicable to this development, and if permission for it's use is obtained from such communities and the local fire jurisdiction.

B. Vegetation Management on Sides of Roads and Street Trees:

All roads, serving all parcels, in the development will have vegetation clearance of flammable vegetation (such as weeds, natives or any undesirable plants) on 100' of each side, due to the single access road.

Roadside Vegetation Management Zones shall be cleared of flammable vegetation including flammable shrubs and trees, and/or planted and irrigated with fire-resistant plants and trees. Trees shall not be of a type prohibited in this plan. Coastal Live Oak and Englemann Oak trees may remain. No canopies to overhang road. 30' required between mature canopies. Roadside canopies to be 13'6" above street and there shall be no portion of a tree intruding into the access road width. Trees to be limbed up 1/3 height or 13' 6" and the lowest portion shall be 3 times as high as any understory. Grass shall be mowed to 4". Fire resistive shrubs, or cultivated ground cover such as green grass, ivy, succulents or similar plants used as ground covers may be used, provided they do not form a means of readily transmitting fire, and do not create a fire ladder into trees.

C. Vegetation Management on Sides of Trails:

Vegetation Management is required on the sides of any equestrian and hiking trails, out to 10' on each side. Flammable vegetation (such as weeds, natives or any undesirable plants) must be

removed, except for that needed for soil and slope stability and to prevent erosion. Grasses must be kept mowed to 4" or less. Trees may be planted or remain if they are not prohibited on the list in this plan. Trees must be properly spaced and limbed up with no flammable understory.

D. Planting of Detention Basins, Channels, Open Space Areas:

Any detention basins, channels or open space areas may be considered biological buffer zones and may not be allowed by resource agencies to have vegetation management. Detention basins, channels, and open space areas should not have any vegetation of the type prohibited in this Plan, and all vegetation shall be maintained fire safe. Homes and structures shall be 100' from such areas, and that 100' should be maintained in same manner as Zone B.

E. Vacant Parcels:

Lots that are vacant will not be required to have vegetation management until construction begins on the lot or adjacent lot. Prior to issuance of a building permit for construction, grading, digging, installation of fences, or other construction, the outermost 30' of the private lot shall be considered a Vegetation Management Zone, and maintained in the same manner as specified for Zone B. Flammable vegetation shall be reduced by 60% in this zone. Additionally, dead fuel, ladder fuel (fuel which can spread fire from ground to trees), and downed fuels shall be removed and trees/shrubs shall be properly limbed, pruned and spaced per this plan. The remainder of the Vegetation Management Zones required for the particular parcel shall be implemented and maintained prior to flammable material being brought to any lot under construction (typically defined as delivering framing lumber).

F. Common Vegetation Management Zones:

Vegetation Management Zones may extend onto neighboring onsite lots and common areas. Zones may join each other, on adjoining onsite parcels, as long as the intent to provide vegetation management zones beginning at each structure, and extending in all directions, as required, is complied with. The HOA, or other responsible entity, shall assure that vegetation management is implemented on an ongoing basis in these areas. Zones may not extend beyond this property without written permission of the off site land owners.

G. Environmentally Sensitive Areas/Riparian Areas:

In areas, which may be environmentally sensitive due to habitat, certain vegetation, cultural sites, or riparian areas, biological buffer zones, etc, permission will be needed from the County of San Diego DPLU and the resource agencies (i.e., State Fish and Game and Federal Fish and Wildlife) prior to any vegetation management. Structures shall be located at least 200' from these areas.

H. Alternative Methods:

The developer, HOA, or private lot owner may submit a site specific risk assessment and detailed vegetation management plan, to the DPLU, proposing alternative methods of equivalent fire protection and providing justification for less than the recommended vegetation management

zones, if there is a practical difficulty, or environmental constraint, in providing the entire size of vegetation management zones.

I. Undesirable Plants and Planting, Spacing and Maintenance Guidelines:

All plants and vegetation will burn under extreme fire weather conditions such as a drought, or several days of hot dry weather and winds. However plants burn at different intensities and rates of consumption. Fire resistive plants burn at a relatively low intensity with slower rates of spread and shorter flame lengths. The following are characteristics of fire resistive vegetation:

- Growth with little or no accumulation of dead vegetation (either on ground or standing upright).
- Non- resinous plants (no resin or oil content).
- Low volume of total vegetation (for example, grass as opposed to a forest or shrub covered land).
- Plants with high live fuel moisture (plants that contain a large amount of water in comparison to their dry weight).
- Vegetation with high leaf moisture.
- Low dead to live fuel ratio.
- Drought tolerant plants (deeply rooted plants with thick heavy leaves).
- Stands without ladder fuels (plants with small fine branches and limbs between the ground and the canopy of overtopping shrubs and trees).
- Plants requiring little maintenance (slow growing plants which, when maintained, require little care).

Plants with woody stems and branches that require prolonged heating to ignite.

Certain vegetation is considered to be undesirable in the landscape due to characteristics that make them highly flammable, and should be prohibited. These characteristics can be physical or chemical. Physical properties that contribute to high flammability include large amounts of dead material retained within the vegetation, rough or peeling bark, and the production of large amounts of litter. Chemical properties include presence of oils, resins, wax, and pitch. Any such existing vegetation should be removed and new ones should not be introduced.

Fuel Modification Zones

SOME EXAMPLES OF Prohibited Plant Material

Trees

Botanical Name	Common Name
Abies species	Fir Trees
Acacia species	Acacia
Agonis juniperina	Juniper Myrtle
Araucaria species	Norfolk Island Pine
Callistemon species	Bottlebrush
Cedrus species	Cedar

Chamaecyparis species	False Cypress
Cinnamomum camphora	Camphor Tree
Conifers	Pine, Cedar, etc
Cryptomeria japonica	Japanese Cryptomeria
Cupressocyparis leylandii	Leylandii Cypress
Cupressus forbesii	Tecate Cypress
Cupressus glabra	Arizona Cypress
Cupressus sempervirens	Italian Cypress
Cupressus species	Cypress
Eucalyptus species	Eucalyptus
Geijera Parviflora	Australian Willow
Juniperus species	Juniper
Larix species	Larch
Olea europea	Olive Tree (if any flammable understory or if not properly spaced or not located properly away from structures)
Palm species	Palms
Pinus species	Pine
Podocarpus species	Fern Pine
Pseudotsuga manziesii	Douglas Fir
Schinus molle	California Pepper Tree
Tamarix species	Tamarix
Taxodium species	Cypress
Taxus species	Yew
Tristania Conferta	Brisbane Box
Tsuga species	Hemlock

Groundcovers, Shrubs & Vines

Botanical Name	Common Name
Acacia species	Acacia
Adenostoma fasciculatum	Chamise
Adenostoma sparsifolium	Red Shanks
Anthemis cotula	Mayweed
Arbutus menziesii	Madrone
Arctostaphylos species	Manzanita
Arundo donax	Giant Reed
Artemesia californica	California Sagebush
Artemesia caucasia	Silver Spreader
Artemesia pycnocephala	Sandhill Sage
Artemesia species	
Arundo Donax	Giant Cane
Atriplex species	Saltbush
Baccharis pilularis consanguine	Coyote Bush
Baccharis species	Coyote Bush
Bambusa species	Bamboo
Bougainvillea species	Bougainvillea
Brassica nigra	Black Mustard

Brassica rapa	Yellow Mustard, Wild Turnip
Cardera draba	Noary Cress, Perennial Peppergrass
Carpobrotus species	Ice Plant, Hottentot Fig
Cirsium vulgare	Wild Artichoke
Conyza bonariensis	Horseweed
Coprosma pumila	Prostrate Coprosma
Cortaderia selloana	Pampas Grass
Cytisus spp	Scotch Broom, French broom
Dodonea viscosa	Hopseed Bush
Eriogonum fasciculatum	California Buckwheat
Eriogonum species	Common Buckwheat
Fremontodendron species	Flannel Bush
Hedera helix	English Ivy
Heterotheca grandiflora	Telegraph Plant
Juniperus species	Juniper
Lactuca serriola	Prickly Lettuce
Mahonia species	Mahonia
Miscanthus species	Eulalie Grass
Muehlenbergia species	Deer Grass
Nicotiana bigelovii	Indian Tobacco
Nicotiana glauca	Tree Tobacco
Pennisetum setaceum	Fountain Grass
Perronskia atripliciflora	Russian Sage
Pickeringia 'Montana'	Chaparral Pea
Rhus diversiloba	Poison Oak (worker/firefighter safety)
Rhus laurina	Laurel Sumac
Rhus lentii	Pink Flowering Sumac
Ricinus communis	Castor Bean
Rosmarinus species	Rosemary
Salvia mellifera	Black Sage
Salvia species	Sage
Salsola australis	Russian Thistle, Tumbleweed
Solanum xanthii	Purple Nightshade (toxic)
Silybum marianum	Milk Thistle
Tamarix spp	Tamarisk
Thuja species	Arborvitae
Urtica urens	Burning Nettle
Vinca major	Periwinkle

DO NOT PLANT, OR RETAIN, ANY OF THE ABOVE LISTED VEGETATION IN ANY FUEL MODIFICATION (VEGETATION MANAGEMENT) ZONE OR IN ANY MEDIAN, PLANTER, ROADSIDE, OR OPEN SPACE. DO NOT USE ANY OF THE ABOVE LISTED TREES OR SHRUBS AS STREET TREES. OR SHRUBS. This list is not all-inclusive as lessons are learned regarding fire resistance during every fire. The absence of a plant from this list does not necessarily mean it is fire resistive. Also, other plants can become fire hazards under drought conditions. Landscape architects may submit a report to the Fire Marshal with written

justification and certification as to the fire resistiveness of certain plants, for review of the Fire Marshal.

Notes:

1. For the purpose of using this list as a guide in selecting plant material, it is stipulated that all plant material will burn under various conditions.
2. The plants listed include only those plants that have been documented as "*High Fire Risk*." The exclusion of any plant from this list does not indicate that it IS or IS NOT fire resistant.
3. All vegetation used in Vegetation Management Zones and elsewhere in this development shall be subject to approval of the Fire Marshal.

Planting, Spacing And Maintenance Guidelines:

General Information:

- A. Make all measurements on the horizontal straight out from structures, rather than down the slope.
- B. Maintenance includes irrigation as well as annual, and ongoing, removal of weeds, dead materials, and other undesirable flammable vegetation required to keep the area fire safe.
- C. As new plantings mature, they must be thinned to maintain the recommended spacing and heights.
- D. The terms "fire resistant", "fire retardant" or fire-wise can be misleading. All vegetation and plants will burn if exposed to enough heat. Because something is considered fire retardant, fire resistant or fire-wise does not mean that unlimited quantities can be planted or that they will somehow slow down a fire.
- E. Limit or eliminate use of plants, which are known to be specifically flammable (anything can burn given enough heat).
- F. Limit use of plants, which develop large amounts of foliage, branches, or dead material.
- G. Limit use of plants, which develop deciduous or shaggy bark.
- H. Limit use of plants, which develop dry or dead undergrowth.
- I. Trees shall be spaced 30' between mature canopies (40' in Zone B). Trees to be limbed up 1/3 height or 6' whichever is greater.
- J. Shrubs and plants shall be spaced and limited in height as specified in the description for the Zones, in this plan.
- K. Keep shrubs 20' from drip line of trees.
- L. Configure plantings so that they are spaced and maintained so as not to create a direct path from native growth to a structure.
- M. Do not use bark or chipped biomass in Zone A, unless it is kept wet (such as in an irrigated planter bed).
- N. All plant species must be limited to those approved by the Fire Department for this area.
- O. Prohibit massing of vegetation adjacent to structures, especially under eaves, overhangs, windows, vents, decks, etc.
- P. Vegetation Management requirements and the requirements for continuous maintenance must be documented in the private lot deed encumbrances, CC&R's and in other legal documents and disclosures at time of sale. It must be made absolutely clear to

- homeowners that they have a legal responsibility to maintain a fire safe defensible space on all sides of the structures in compliance with this plan and the Fire Department requirements. The HOA, or other approved legal entity, shall enforce all vegetation management requirements, and structural protection requirements on all private lots, common areas, buffer zones, streets, trails, open space, parks, retention basins equestrian center, safety zone, and enforce vegetation management requirements in Zone A and B.
- Q. Yearly maintenance, before fire season (typically May 1), including during construction, and more often as needed, is required to reduce fuel volumes, eliminate weeds, remove dead vegetation, cut grass, limb up and prune trees and shrubs, remove down and dead fuels, remove flammable under story, etc.
 - R. Maintenance is also required after any storms or high winds to remove down and dead vegetation and combustible debris from properties and zones.
 - S. If new planting is desired in areas of retained native vegetation, then an irrigation system should be designed to sustain new plantings as needed. Caution should be used so as to not over irrigate natives and thereby increase the dead to live fuel ratio; negating the high leaf moisture.
 - T. Irrigation should be directed away from old, established native oaks and be placed outside of the drip line.
 - U. Caution must be used so as to not cause erosion or ground (including slope) instability, or excessive water runoff, due to vegetation removal, vegetation management, maintenance, landscaping, or irrigation.
 - V. Permission must be obtained in advance from resource agencies, and any other applicable agencies, before doing vegetation management in riparian areas, or other biologically or environmentally sensitive areas or habitats.
 - W. If irrigation is curtailed or irrigation systems fail, any dried or dead vegetation must be removed from vegetation management zones and roadsides.
 - X. All landscape plans for private lots shall be reviewed and approved for fire safety by the Architectural Committee of the Homeowners Association (HOA) or other approved legal entity.
 - Y. Formal, written permission is required before doing any vegetation management or removal off site, or on another person's property.

Annual Ongoing Vegetation Management

Proper ongoing vegetation management is critical to fire safety. Vegetation management shall be done annually by May 1 of each year and more often as needed. The individual homeowners shall be responsible for all vegetation management on their lots in compliance with this plan and Fire Department requirements. The HOA, or other approved legal entity, will be responsible for all common areas, roadsides, buffer zones, retention basins, buffer zones, open space, parks, equestrian center, streetscapes, medians, planters, etc. The HOA, or other approved legal entity, will assure private homeowner lots comply with this plan initially and on an ongoing basis. The requirements for ongoing maintenance will be included in the CC&R's and Deed encumbrances for each lot.

Construction Phase Vegetation Management

Vegetation management in all common areas, medians, planters, roadsides, etc., shall be done as required in this plan at the start of, and throughout the construction phase. Vegetation management shall be done on private lots prior to work beginning on those lots and prior to any combustible construction materials being brought on site. Adequate fuel breaks shall be created around all grading, site work and other construction activities in areas where there is flammable vegetation.

Determination of Proper Vegetation Reduction

Vegetation management is not an exact science. Experience and expertise are required in order to make site-specific determinations as to what is adequate vegetation reduction. The general criteria presented for the zones is subject to on site application, and being sure to do the following: provide soil stability, prevent soil erosion or excessive water runoff, and protect sensitive habitat and endangered species. The objective is to slow down fire spread from vegetation to a structure, or from a structure to vegetation, and to prevent spread of fire from vegetation on ground, into trees. There should be no vegetation (including plants and trees) from the prohibited vegetation list in this plan, in Zone A or B. However, Some existing flammable vegetation in Zone B may be retained but must be reduced to, and maintained at, about 8" in height or less by mowing, cutting, weed whacking, etc. Prevention of erosion and maintenance of soil stability must be considered in this determination. For further details, refer to language regarding Zone B Vegetation Management in this plan.

7. Building Ignition and Fire Resistance for all Structures:

Basic and enhanced fire resistive (ignition resistant) construction, as defined in the County Fire Code Appendix 11-A, Section 26, will be necessary for all structures and appurtenances in accordance with this Plan and all applicable County Codes and Ordinances. All structural setbacks shall comply with DPLU Fire Marshal requirements and have the objective of preventing direct flame contact on a structure from a fire burning up a slope. A minimum 30' setback is recommended.

- a. All residential and non-residential structures, including barns, or accessory buildings over 200 sq feet in size, shall have internal fire sprinkler systems designed to NFPA and DPLU requirements. Single-family residential systems should be National Fire Protection Association (NFPA) standard 13-D, and including garages and enclosed patios or porches. Systems in occupancies other than strictly residential shall be NFPA 13 property protection systems.
- b. Actual sprinkler system design and installation to be to the approval of the San Diego County DPLU Fire Marshal.
- c. Roof systems shall be listed or Fire Marshal approved Class A assemblies installed in accordance with the listing and manufacturer's installation instructions. The end of any Spanish tile roofs, or other high profile roofs, should be blocked to prevent bird's nests and intrusion of burning embers. Where the roof profile allows a space between roof covering and roof decking, the spaces shall be constructed to prevent the intrusion of flames or embers. All roof edges and valleys to be made tight so there are no gaps. Roofing construction shall comply with State Fire Code, Article 86-B, Section 8604B.1, Emergency Supplement; 5-30-06, and Chapter 7-A of the State Building Code; Emergency Supplement dated 6-21-06.
- d. Roof Valleys: When provided, valley flashings shall be not less than 0.019 inch (no. 26 galvanized sheet metal), corrosion resistant metal installed over a minimum of 36" wide underlayment consisting of one layer of No. 72 ASTM cap sheet running the full length of the valley. (CBC Chapter 7-A).
- e. Exterior walls, and unenclosed under floor protection, on all structures to be either one-hour rated stucco assembly or other approved one-hour rated walls on exterior side, or other approved ignition resistant construction. No combustible wall coverings. Walls to comply with County Fire Code.

In all construction, exterior walls will be protected with 2-inch nominal solid blocking between rafters at all roof overhangs under the exterior wall covering.

- f. Eaves shall be detailed and constructed in accordance with current County DPLU Codes and County Fire Code for Enhanced Fire Protection. Vent openings or vent louvers in eaves, eave overhangs, cornices, soffits, rakes, between rafters at eaves, or in other overhang areas are not recommended. If allowed by DPLU Fire

Marshal, they shall be detailed and constructed to prevent flame or ember penetration into the structure and to the satisfaction of the DPLU Fire Marshal. Refer to illustrations in Appendix of this plan.

- g. All attic and foundation vents should be properly designed to prevent flame or ember penetration into the structure, with DPLU Fire Marshal approved mesh size and material. Louvers and approved ¼" mesh are required by code. The Architects and the Building official should investigate use of 3/16" or 1/8" corrosion resistant metal mesh and baffled vent systems, based on lessons learned in the recent fires regarding entrance of burning debris into ventilated spaces through ¼" mesh vents. A baffle system should be created and approved for installation behind vents to catch burning debris and sparks, while allowing adequate ventilation. Vents shall be designed to prevent flame or ember penetration into structure.
- h. Any vent assemblies on roofs to be of an approved type. No turbines allowed.
- i. There shall be no paper-faced insulation, or combustible insulation, in attics or other ventilated spaces.
- j. Glazing facing wildland areas should be minimized. Glazing in structures shall be tempered, double pane with one tempered pane, glass block or have a 20 minute fire rating. Glazing on facing structures with less than 10' between them should be tempered glass or double pane.
- k. Plastic or vinyl window frames should comply with the following:
 - Frame and sash are comprised of vinyl materials with welded corners.
 - Metal reinforcements in the interlock area.
 - Glazed with insulated glass or tempered.
 - Frame and sash profiles are certified in AAMA lineal certification program (verified with either an AAMA product label or certified products directory).
 - Certified and labeled in accordance with ANSI or other approved agency standard.
 - Comply with ANSI/AAMA/NWDA 101/I.S 2-97 structural requirements, as required by County Fire Code.
- l. Any skylights shall be tempered.
- m. Except for windows and sliding glass patio doors, there should be no plastic or vinyl on exteriors of structures.
- n. Gutter and downspouts to be non-combustible. There should be no plastic gutters or downspouts. Gutters shall be designed to prevent build up of debris, leaves, etc.

- o. Doors on structures should be metal, approved non combustible, or solid core heavy wood, having stiles and rails not less than 1 & 3/8" thick with interior field panel thickness no less than 1 & 1/4" or have a 20-minute fire rating. (Ref. CBC Chapter 7-A Emergency Supplement 6-21-06). Any fiberglass doors shall be to approval of the County DPLU Fire Marshal and the Building official. Fiberglass doors on structures to have 20 minute fire rating. Doors on garages to be metal. Wood garage doors may be proposed for use, but only if fire-rated to the satisfaction of the DPLU Fire Marshal. Glazing in doors shall comply with glazing requirements in item 10 in this section.
- p. Structures to be enclosed from underside of roof to ground. No open crawl spaces or open raised floor cavities.
- q. Structures to have approved garden hose connections on all sides of structures.
- r. Approved spark arrestors to be on all chimneys, stovepipes and flues. Arrestors to be visible from grade.
- s. Outbuildings to have same structural fire protection as the main residence.
- t. No hay, firewood, lumber, LPG tanks (except small tank on barbeque), etc, within 30' of residential structures or garages.
- u. LPG tanks shall be properly anchored to ground to resist earthquake, or movement due to a fire or heavy rain. LPG tanks shall not have any flammable vegetation under or around tank for 30'.
- v. Three Story Residences: Three story residences increase the fire and life safety risks in a residential structure. If such structures are proposed, it is recommended that the following be considered for enhanced fire and life safety, in addition to complying with the Building Code requirements for size, square footage, and type of construction. The following protection shall be provided for any third floor area which could be used as a bedroom, child nursery, and any area over 350 square feet:
 - 1) NFPA 13-R sprinkler system with 4 head calc, including sprinklers in attic.
 - 2) Fire resistive, 1 hour rated, construction of exterior walls.
 - 3) Provide large enough windows, sliding doors, and provide balconies, for escape.
 - 4) Use vaulted ceiling on third floor to eliminate attic space and attic vents.
 - 5) Use only non-combustible insulation with non-combustible paper.
 - 6) Enclose the stairway to the third story with rated self-closing door and 1-hour walls.
 - 7) Smoke detection system in third floor and throughout house shall sound the alarm in all detectors when any detector activates.
 - 8) Purchase 35' ladder for Fire Department if they do not have one.

- 9) Top of balcony shall not be more than 25' above accessible grade. 35' ladder will not reach over that.
- 10) Provide a flat concrete spot on ground for fire department to raise ladder to the 3rd story balcony. Spot to be 5' by 5' and be 8' from building wall.
- 11) Provide 3' wide firefighter foot access around all structures. Access must be adequate for maneuvering a gurney and a ground ladder.
- 12) Set backs to be per DPLU requirements.

Note: all new building permits issued on 1-1-08 or thereafter, must comply with the new 2007 CBC Chapter 7-A , and revised County Fire and Building Codes, pending their adoption 1-1-08.

Decks, Fences, Addresses

- A. Decks, porch covers, balconies, carports patio covers, gazebos, similar architectural appendages, unenclosed floors and roofs, and any projections from structures, will be approved non-combustible, approved fire retardant treated wood, one hour fire rated or heavy timber. The underside will be enclosed on all sides, or be heavy timber. When such appendages are attached to exterior walls, they will be constructed to maintain the fire resistive integrity of the wall. There will be no plastic or composite decks or railings, which can melt in fire conditions or contribute to fire spread. Decks, patios and gazebos will be at least 100' from the property line where possible. Decks and their surfaces, risers, stair treads and landings, shall comply with CBC Chapter 7-A, Emergency Supplement 6-21-06. The underside of overhanging or cantilevered appendages and projections shall maintain the integrity of the exterior walls or be enclosed to the grade. (Refer to CBC Chapter 7-A emergency supplement 6-21-06). Cantilevered Decks should not overhang slopes.

Fences within 100' of structures shall be heavy timber, block or steel. No wood allowed within 5' of structure, other than a wood gate and it's supporting post. In this case, there shall be non-combustible material for 5' to the fence to provide a firebreak. Property line fencing along the perimeter should be solid block, masonry, steel, or heavy timber. Any wood fencing for multi-use trail along the perimeter and in the interior of the project will be heavy timber. Heavy timber split rail or heavy timber fences can be used outside of the fuel modification zones as well as within the equestrian centers and equestrian trails. No fencing or railings will be plastic or vinyl.

- B. Structure Addresses: Structures will have reflective, visible, legible, street addresses; 4" high numbers with 3/8" stroke for residential; 6" numbers with 1/2" stroke for other occupancies. Characters will contrast with their background. Addresses to also be posted at the road entrance to driveways. Addresses will be visible from the roadway from either direction of approach. Addresses shall not be posted on wooden posts.
- C. No plastic fences or railings along roads or trails.

8. Access Roads and Firefighter Walkways:

The site has one access road, Los Coyotes Road, which extends from existing roads in existing subdivisions, leading to the entrance to the tract, and then extends through the tract and continues on into an Indian Reservation, where it eventually ends after several miles. E-mail, received on 11-22-06, from Ralph Steinhoff, DPLU Fire Service Coordinator states "Los Coyotes Road is the primary access to the Los Coyotes Indian Reservation. Over the last several decades the road has not been closed. Therefore, we believe it to serve the same practical effect as a second access. (Ed.note: In addition the enhanced construction as well as various construction safeguards that exceed the requirements found in the County Fire Code, and the extensive fuel modification zones on site, contribute further to providing the same practical effect. In addition it is estimated that occupants can drive to the Warner Ranch Golf Course, if necessary, in about 4 minutes at 25 MPH.) This addresses second access not road improvements. If road improvements are a map condition they will need to be addressed. Some sort of a CFD will also need to be in place. It would help fund Fire Service from the CDF. The Warner Volunteers have disbanded". Access roads will comply with San Diego County Fire Code Section 902.2, and will be provided when the any portion of the facility or any portion of the exterior wall of the first floor of any structure is beyond 150' from the closest approved, 24' wide unobstructed, Fire Department vehicle access road, as measured by an approved route around exterior of the building. Road to support a 50,000-pound fire apparatus. This includes all residences and other occupancies. All roads, and any cul-de-sac bulbs or hammerheads, should be all weather and meet DPLU requirements for fire access. The required road widths of all roads, including Los Coyotes Road, will be a minimum of 24' unobstructed, paved, width (unobstructed by parking) and will have unobstructed vertical clearance, and be of a paved surface capable of supporting a 25-ton fire truck.

There shall be no overhanging tree canopies on roads. There shall be no portions of trees intruding on width of access road. There shall be no road grades over 15%. Angle of departure and approach to be approved by DPLU Fire Marshal. Turning radius to be 28' measured from inside edge of improved width.

- A. Driveways will be provided if structure is 150' beyond the Fire Department access road (the onsite roads). Residential driveways, serving no more than two single-family dwellings, to be 16' wide by 13'6" high unobstructed and be to DPLU approval as to length and grade. Maximum driveway grade will be 15%, unless mitigated to approval of the DPLU Fire Marshal Mitigation can include concrete driveway with heavy broomed finish perpendicular to direction of travel, for traction (20% max). Driveways exceeding 150' in length shall have an approved turnaround at house. It shall be posted "*No Parking Fire Lane*". Turning radius to be 28' inside radius and 45' outside radius.
- B. Access roads serving more than 2 structures shall be 24' wide unobstructed, have 13'6" vertical clearance, and have Cul-de-sac turnarounds (bulbs) if road exceeds 150'. Bulbs and hammerheads will be posted "*No Parking Fire Lane*". Cul-de-sac bulb to have 40' radius (80' diameter).

- C. Any speed bumps, traffic calming devices, raised planters or median strips will be to DPLU Fire Marshal approval. There will be no trees or other plantings within the unobstructed width of access roads.
- D. Any gates, including automatic gates, will comply with the San Diego County Fire Code Section 902.2.4.3. There will be no gated communities within the overall development, or gated common roads. Private homeowners may gate their individual private driveways as long as they comply with all applicable County codes including the Consolidated Fire Code Section 902.2.4.3, including an approved key operated switch overriding all common functions and opening the gate(s). The switch shall be dual keyed or have dual switches to facilitate access by law enforcement. Gates shall also have means of manual activation from both sides in the event of a power outage.
- E. Provide 3' wide firefighter foot access around all structures. Provide locations for spotting of Fire Department ground ladders on multiple storied structures. There shall be no trees or landscape, other than groundcover, which could prohibit Fire Department from gaining access and spotting ladders.
- F. Streets will be named and have street signs at entrance to tract and at each intersection, listing the hundred block, meet DPLU standards and have reflective letters/numbers, and be non combustible (non wood/non plastic) on non combustible (non wood/non plastic) posts.
- G. Fire Truck access points will be provided for direct access to wildland areas and open spaces abutting developed areas. These access points may be intermittent 12' wide access points from perimeter roads within the development, or may be all weather 12' wide, non paved, roads which provide access to perimeter wildland areas. Access points shall be located to the approval of the DPLU Fire Marshal.
- H. There shall be Fire Truck turnouts, into the roadside fuel modification zones, every 1,000'. A 10' deep by 50' long all weather surface will be provided.

Roads leading to a structure from the existing main road shall be in and usable prior to any construction on the lot.

9. Water Supply and Fire Flow:

This development will be served by private 10,000 gallon capacity stored water tanks on each parcel. The fire flow is based upon all new structures having fire sprinklers. All water tanks shall comply with the County Fire Code Section 903.3.2. All tanks shall comply with the following:

Tanks:

- A. The size of the water tank for fire protection shall be 10,000 gallons on each parcel. The Fire Code requires 10,000 gallons. The Fire flow in Gallons Per Minute (GPM) shall be 250. The tank elevation shall be equal to or higher than the Fire Department connection on the premises to allow gravity flow and pressure. The tank shall be equipped with an automatic refill device to maintain the 10,000 gallons at all times. Tank shall be steel or other material approved by Fire Marshal. Foundation and anchoring to be to DPLU approval. Installation to be per manufacturers recommendations. Tank system shall comply with NFPA Standard 22.
- B. Supply outlet for Fire Engine shall be 4 in diameter from base of tank to the point of the Fire Department Connection (FDC).
- C. Fire Department Connection to be gated, 4" diameter male National Standard Thread, reduced to 2.5" diameter male National Standard thread with a cap. Fire truck shall be able to get within 10' of connection. Connection shall be at least 50' from the structure.
- D. Connection to be 18" above grade.
- E. Valve to be steel indicating valve listed or approved for fire service.
- F. Location of FDC to be to Fire Marshal approval and shall be along an approved access way, and shall not be closer than 50' or further than 150' from a structure. Connection to be labeled "Fire Department Connection".
- G. All exposed tank supply pipes shall be of an alloy or other material listed for aboveground use. No plastic pipe or valves.
- H. Fire Department connection and piping to comply with NFPA 22 and 24.
- I. Vessels previously used for storing other than water are not allowed.
- J. Tanks shall have 100' vegetation management zone around them.
- K. Tanks to be labeled "Fire Water" 10,000 gallons.

Fire Sprinkler Supply:

The supply to the fire sprinkler systems shall be from an elevated gravity feed tank, or from an approved pressure tank system complying with National Fire Protection Association Sprinkler Standard 13, or from an approved fire pump system fed from the tank. Water supply piping and appurtenances to comply with NFPA 24 and the appropriate NFPA 13 standard. The sprinkler system should be an NFPA 13-D system. The water supply to the sprinklers shall be for at least 30 minutes due to location of this development. The system shall be protected from freezing, if needed.

If a fire pump system is used, the pump should be UL listed or FM approved for fire service. It should either be a diesel, or an electric fire pump with emergency power supply. The pump and

emergency power supply shall be in an approved, fire resistive enclosure. The pump system, and its installation, shall be approved by the DPLU Fire Marshal. The pump system shall be supervised to a local on site alarm. Pump system shall comply with NFPA 20.

If a pressure tank system is provided, it shall comply with NFPA standards, including NFPA 13, be supervised to a local on site alarm, and be approved by the DPLU Fire Marshal.

If an elevated storage tank is used for the supply, it shall be to approval of the DPLU Fire Marshal and shall provide 30 minutes fireflow to the sprinklers.

Adequate vegetation clearance shall be provided for 100' around any water tanks, pumps, or pressure tanks.

Tanks, including pressure tanks, shall have vehicle crash protection. Such protection shall not interfere with Fire Department connection to, and use of, the tank connections.

The actual design of the fire sprinkler systems, and their water supply, shall be by an approved fire sprinkler designer to approval of the DPLU Fire Marshal. Installation of the system to be by a licensed fire sprinkler contractor.

A licensed fire sprinkler contractor, or approved fire system inspector, should inspect each fire sprinkler system annually, due to its importance. The contractor should conduct any necessary tests and make any needed repairs, and submit a report to the local CDF fire captain and to the DPLU Fire Marshal. Such inspection to be funded by the homeowner.

Approved emergency fire truck access will be provided to within 10' of any on site storage tank Fire Department connection.

In addition to the storage tanks, an approved drafting hydrant shall be provided on all swimming pool systems for pools over 5000 gallons. Location to be to approval of the local CDF Fire Station Captain. The hydrant shall be labeled "*Pool Fire Hydrant # Gallons*". Or, direct, approved, fire truck access shall be provided to all pools over 5,000 gallons.

10. Fire Protection Systems and Equipment:

Explanatory Note: All fire extinguishing systems shall be installed per San Diego County Consolidated Fire Code and NFPA standards, and approved by the DPLU Fire Marshal.

All residential and non-residential structures, barns, and accessory buildings, over 200 square feet in size, to have internal fire sprinkler systems designed to NFPA and DPLU requirements. Single-family residential systems should be National Fire Protection Association (NFPA) standard 13-D with coverage to meet the requirements of the DPLU Fire Marshal, including garages and enclosed patios or porches. Duration of flow to be at least 30 minutes. Buildings with other than strictly residential uses shall be NFPA 13 property protection systems.

Actual sprinkler system, and water supply, design and installation to be to approval of the San Diego County Department of Planning and Land Use Fire Marshal. Systems to have freeze protection if needed.

A licensed fire sprinkler contractor, or approved fire system inspector, should inspect each fire sprinkler system annually, perform any needed tests or repairs, and submit a report to the local CDF fire captain and to the DPLU Fire Marshal. Such inspection to be funded by the homeowner. The HOA should provide training and information to homeowners as to the maintenance of the sprinkler systems, the control valves, etc.

All residential units to have smoke detectors.

11. Emergency Plan and Reporting of Emergencies:

An Emergency Plan should be prepared and issued to all residents of the development. This plan should include procedures and guidelines for protective actions to take in the event of an emergency and should be approved by the Fire Department.

12. Helicopter Landing Area:

In concept, a location to land a helicopter, where there are no trees, steep slopes, or power lines, such as at either cul-de-sac, or in the roadway (which has 100' fuel modification on each side) will be provided, so that a fire agency may land a helicopter in an emergency, if they desire to do so. Actual configuration to be to approval of the local CDF Fire Station Captain and any other applicable agencies.

An approved fire truck connection supplied from a 10,000 gallon storage tank will be located within 150' of the potential landing sites.

13. Summary:

All buyers and occupants of property in this development will be put on notice that this project is within a high fire hazard area. All buyers shall also be given a list of the recommendations and requirements found in this report and shall sign an acknowledgment agreeing to comply with all fire safety requirements for this development.

This development will comply with all applicable requirements of the San Diego County Fire and Building Codes, and requirements of the DPLU Fire Marshal. The recommendations in this plan, when approved by the San Diego County DPLU Fire Marshal and other applicable agencies, shall be included in the CC&R's for every lot and will be a deed encumbrance or other legal document, which follows with the property sale.

As fire is dynamic and unpredictable, this plan does not guarantee that a fire won't occur or won't cause property damage, injury or loss of life. No expressed or implied guarantees are made regarding the adequacy or effectiveness of the recommendations and requirements in this plan for all situations.

Architecture, landscape architecture, engineering, and construction are out of the scope of this Fire Protection Plan. All final architectural, landscape architecture and engineering design and official plan approvals of same must be obtained from the authorities having jurisdiction including the DPLU Fire Marshal. In the event there is a practical difficulty, legal environmental constraint or other legal constraints, or engineering/architectural difficulties in complying with this plan, alternative methods of compliance may be submitted to the County DPLU Fire Marshal, for review and approval if equivalent protection is provided and is in compliance with the spirit and intent of this Conceptual Fire Protection Plan.

APPENDIX:

1. Photos of Site
2. Tract Map/Fuel Modification Exhibit
3. Fuel Modification Exhibits
4. Behave Fire Spread Model
5. Enhanced Fire Resistive Eave Construction Requirements

1. Photos of Site

1. Site Photos:

The following photos are included in order to provide a sense of the type of vegetation and terrain currently on site, and also the existing main road:



Site Photos:

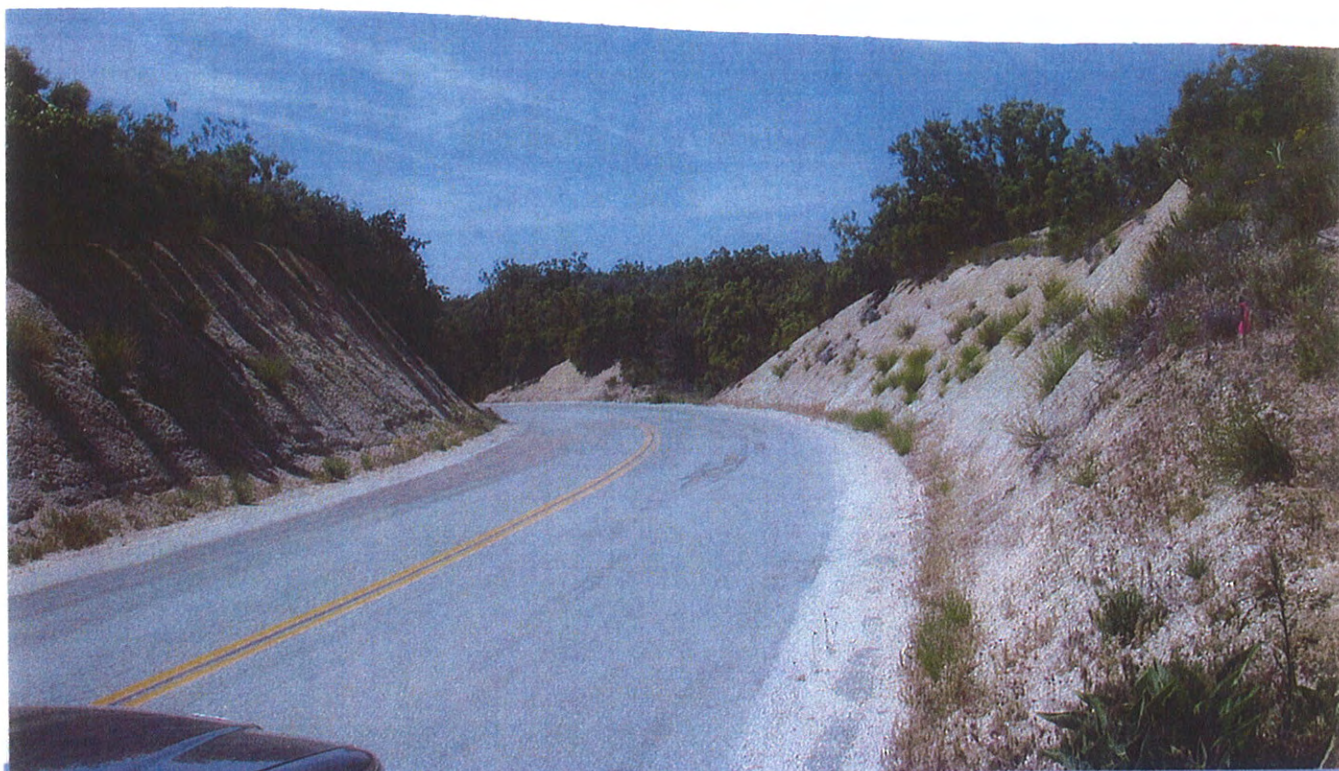
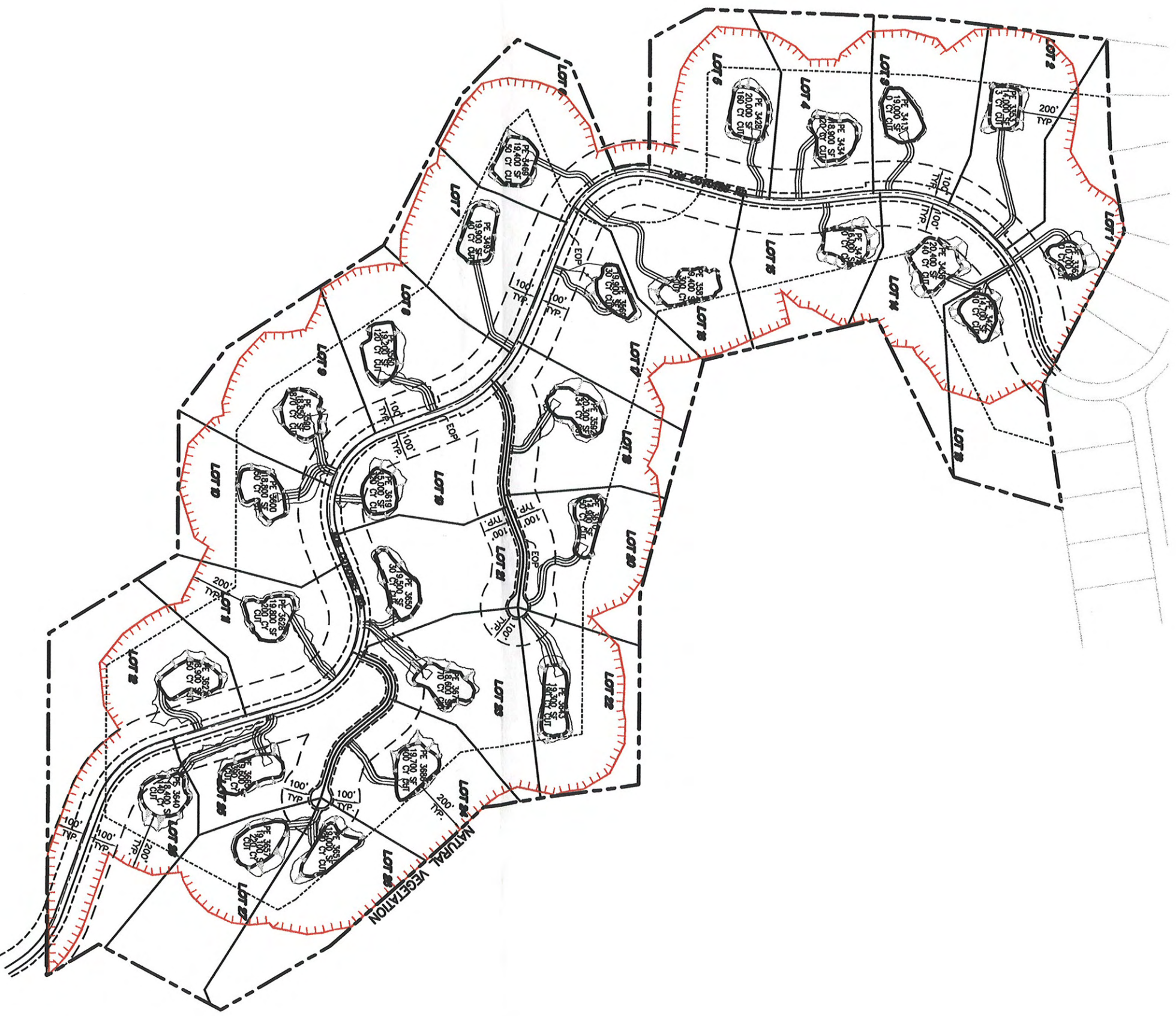


Photo:



2. Tract Map/Fuel Modification Exhibit

TM 5450 WARNER SPRINGS - LOS COYOTES ROAD
FUEL MODIFICATION EXHIBIT
(SITE PLAN)



LEGEND

- 100 FT ROADSIDE FUEL MODIFICATION ZONE
- 200 FT FUEL MOD ZONE
- 200 FT LIMITED BLDG ZONE

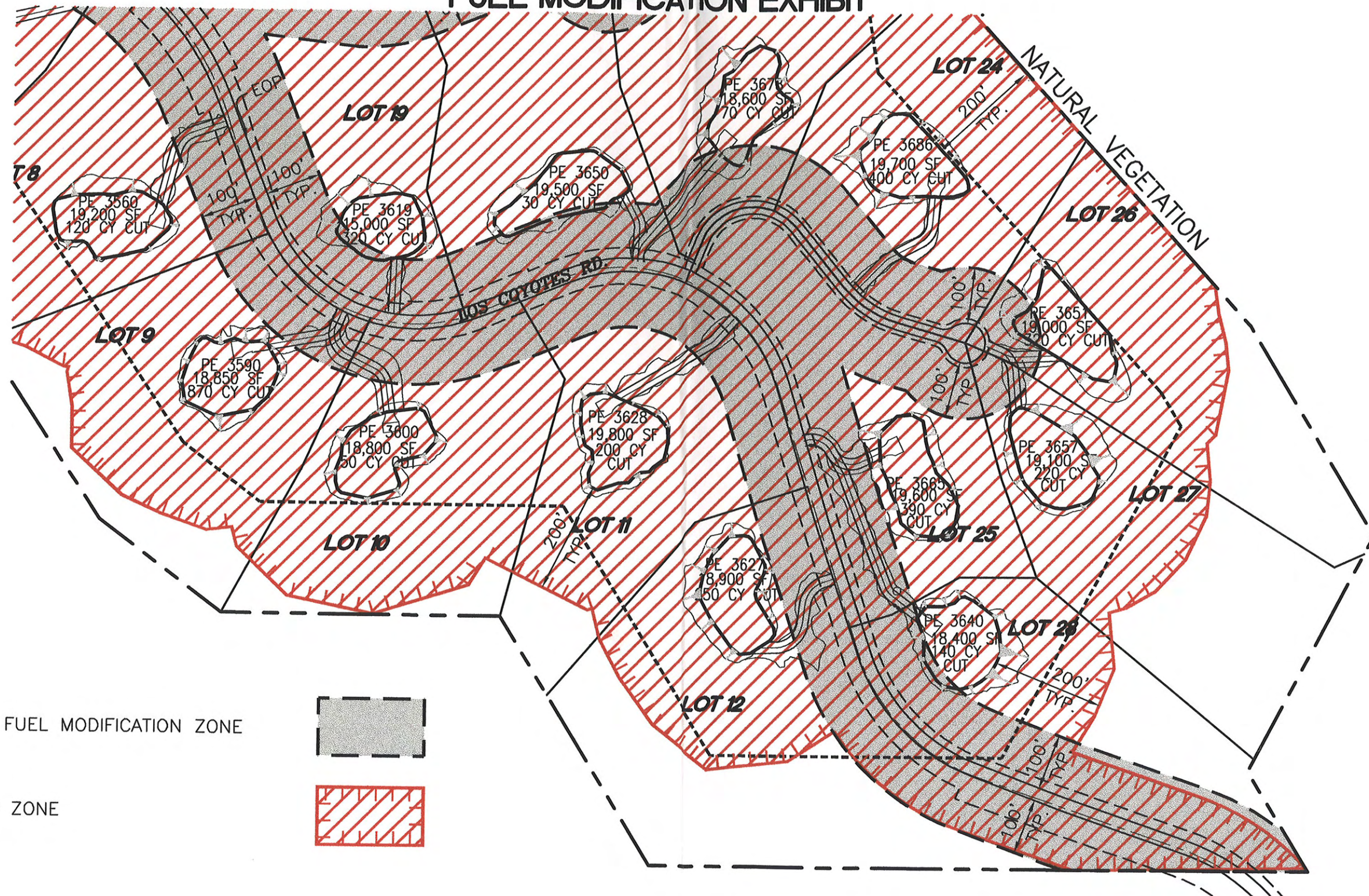


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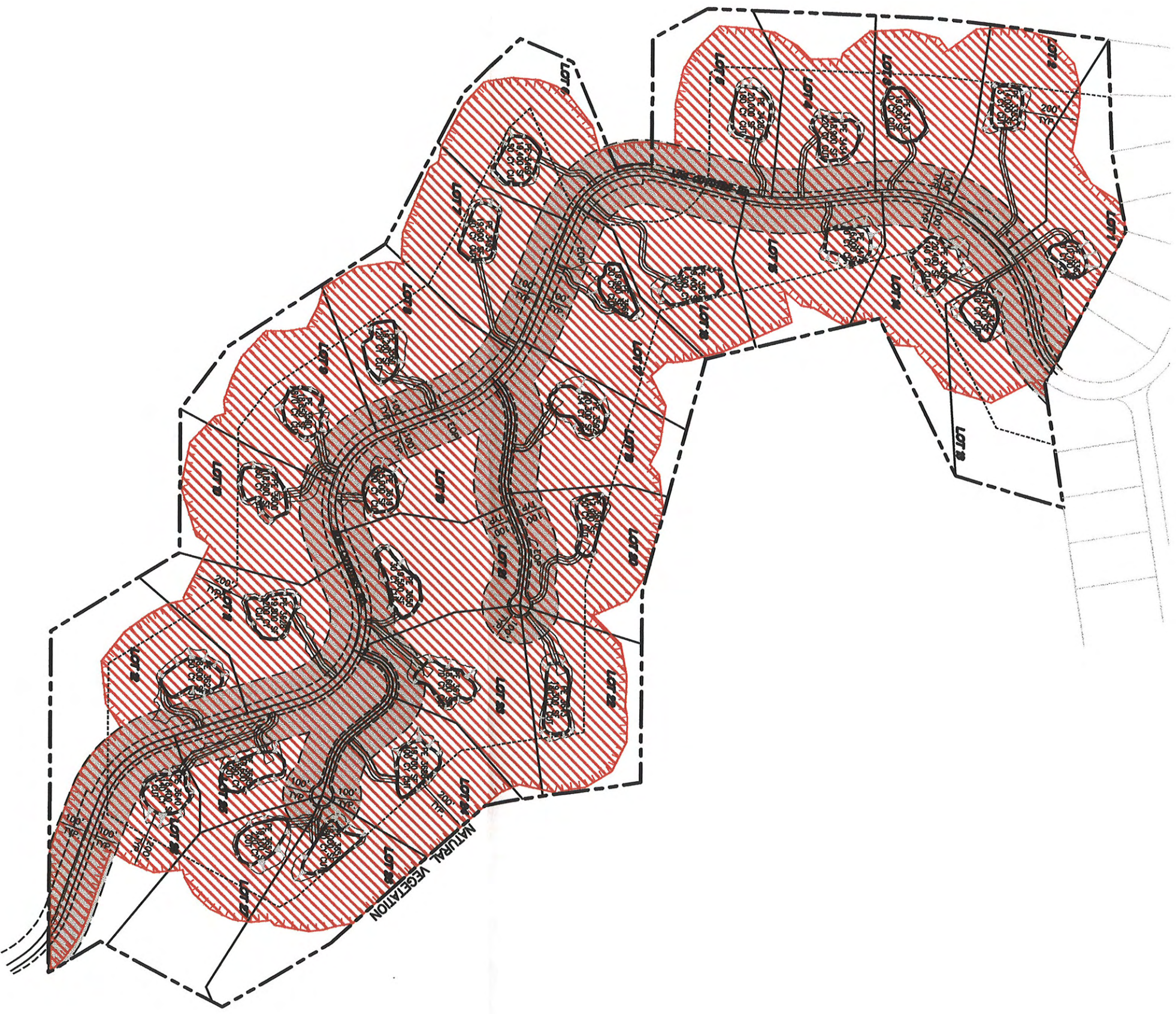


3. Fuel Modification Exhibits

TM 5450 WARNER SPRINGS - LOS COYOTES ROAD **FUEL MODIFICATION EXHIBIT**



TM 5450 WARNER SPRINGS - LOS COYOTES ROAD
FUEL MODIFICATION EXHIBIT



LEGEND

100 FT ROADSIDE FUEL MODIFICATION ZONE



200 FT FUEL MOD ZONE



SCALE: 1" = 400'



SCALE IN FEET



warner springs-summer fire

Surface Rate of Spread (maximum)	60.0 ch/h
Flame Length	19.5 ft
Midflame Wind Speed (upslope)	3.0 mi/h
Max Eff Wind Exceeded?	No
Spot Dist from Wind Driven Surface Fire	0.3 mi
Probability of Ignition from a Firebrand	100 %

75 mph

Modules: SURFACE, SPOT, IGNITE

Description

warner springs cedar

Fuel/Vegetation, Surface/Understory

Fuel Model

4

Fuel/Vegetation, Overstory

Canopy Height

ft

8

Fuel Moisture

1-h Moisture

%

4

10-h Moisture

%

4

100-h Moisture

%

4

Live Herbaceous Moisture

%

Live Woody Moisture

%

65

Weather

20-ft Wind Speed (upslope)

mi/h

9

Wind Adjustment Factor

0.5

Air Temperature

oF

96

Fuel Shading from the Sun

%

0

Terrain

Slope Steepness

%

0

Ridge-to-Valley Elevation Difference

ft

100

Ridge-to-Valley Horizontal Distance

mi

0.1

Spotting Source Location

MW

Run Option Notes

Calculations are only for the direction of maximum spread [SURFACE].

Fireline intensity, flame length, and spread distance are always
for the direction of the spread calculations [SURFACE].

Wind is blowing upslope [SURFACE].

Output Variables

Surface Rate of Spread (maximum) (ch/h) [SURFACE]

Flame Length (ft) [SURFACE]

Midflame Wind Speed (upslope) (mi/h) [SURFACE]

Max Eff Wind Exceeded? [SURFACE]

Spot Dist from Wind Driven Surface Fire (mi) [SPOT]
(continued on next page)



warner springs cedar

Surface Rate of Spread (maximum)	98.4 ch/h
Flame Length	23.5 ft
Midflame Wind Speed (upslope)	4.5 mi/h
Max Eff Wind Exceeded?	No
Spot Dist from Wind Driven Surface Fire	0.5 mi
Probability of Ignition from a Firebrand	80 %

1.23 mph

**Modules: SURFACE, SPOT, IGNITE**

Description		Warner Springs high wind low FM
Fuel/Vegetation, Surface/Understory		
Fuel Model		4
Fuel/Vegetation, Overstory		
Canopy Height	ft	8
Fuel Moisture		
1-h Moisture	%	2
10-h Moisture	%	2
100-h Moisture	%	2
Live Herbaceous Moisture	%	
Live Woody Moisture	%	55
Weather		
20-ft Wind Speed (upslope)	mi/h	60
Wind Adjustment Factor		0.5
Air Temperature	oF	96
Fuel Shading from the Sun	%	0
Terrain		
Slope Steepness	%	0
Ridge-to-Valley Elevation Difference	ft	100
Ridge-to-Valley Horizontal Distance	mi	0.1
Spotting Source Location		RT

Run Option Notes

Calculations are only for the direction of maximum spread [SURFACE].

Fireline intensity, flame length, and spread distance are always
for the direction of the spread calculations [SURFACE].

Wind is blowing upslope [SURFACE].

Output Variables

Surface Rate of Spread (maximum) (ch/h) [SURFACE]

Flame Length (ft) [SURFACE]

Midflame Wind Speed (upslope) (mi/h) [SURFACE]

Max Eff Wind Exceeded? [SURFACE]

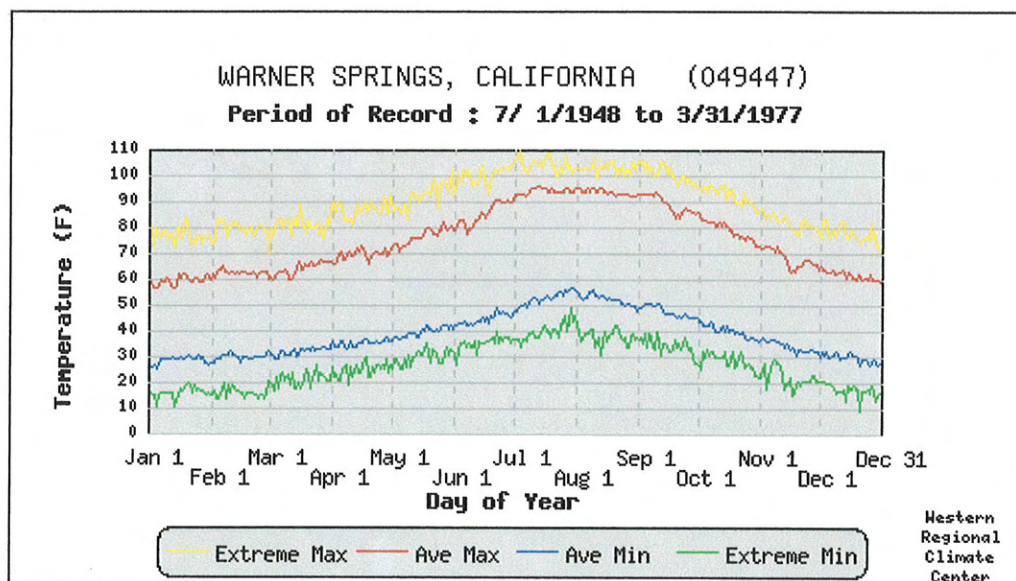
Spot Dist from Wind Driven Surface Fire (mi) [SPOT]
(continued on next page)

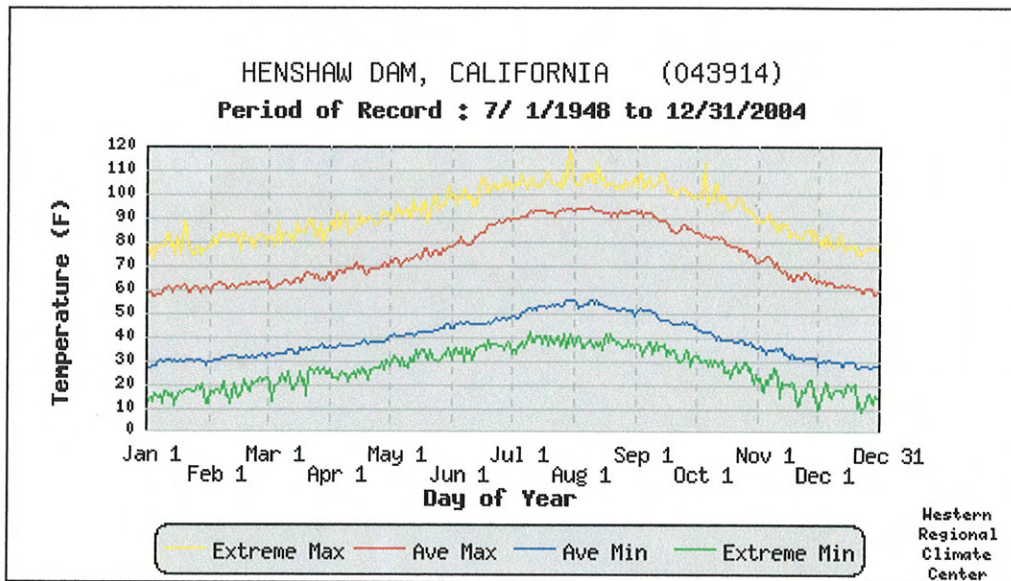


Warner Springs high wind low FM

Surface Rate of Spread (maximum)	1740.0 ch/h
Flame Length	93.5 ft
Midflame Wind Speed (upslope)	30.0 mi/h
Max Eff Wind Exceeded?	No
Spot Dist from Wind Driven Surface Fire	4.6 mi
Probability of Ignition from a Firebrand	100 %

22.7 mph





SITE INFORMATION

ID: PIHC1
NAME: PINE HILLS
LATITUDE: 33.0164
LONGITUDE: -116.6344
ELEVATION: 3600 ft
MNET: RAWS



(Click [above](#) or [here](#) for topo map)

SITE LINKS

[Help](#)

[MesoWest](#)

[Metric Units](#)

[Greenwich Mean Time](#)

[Past Data](#)

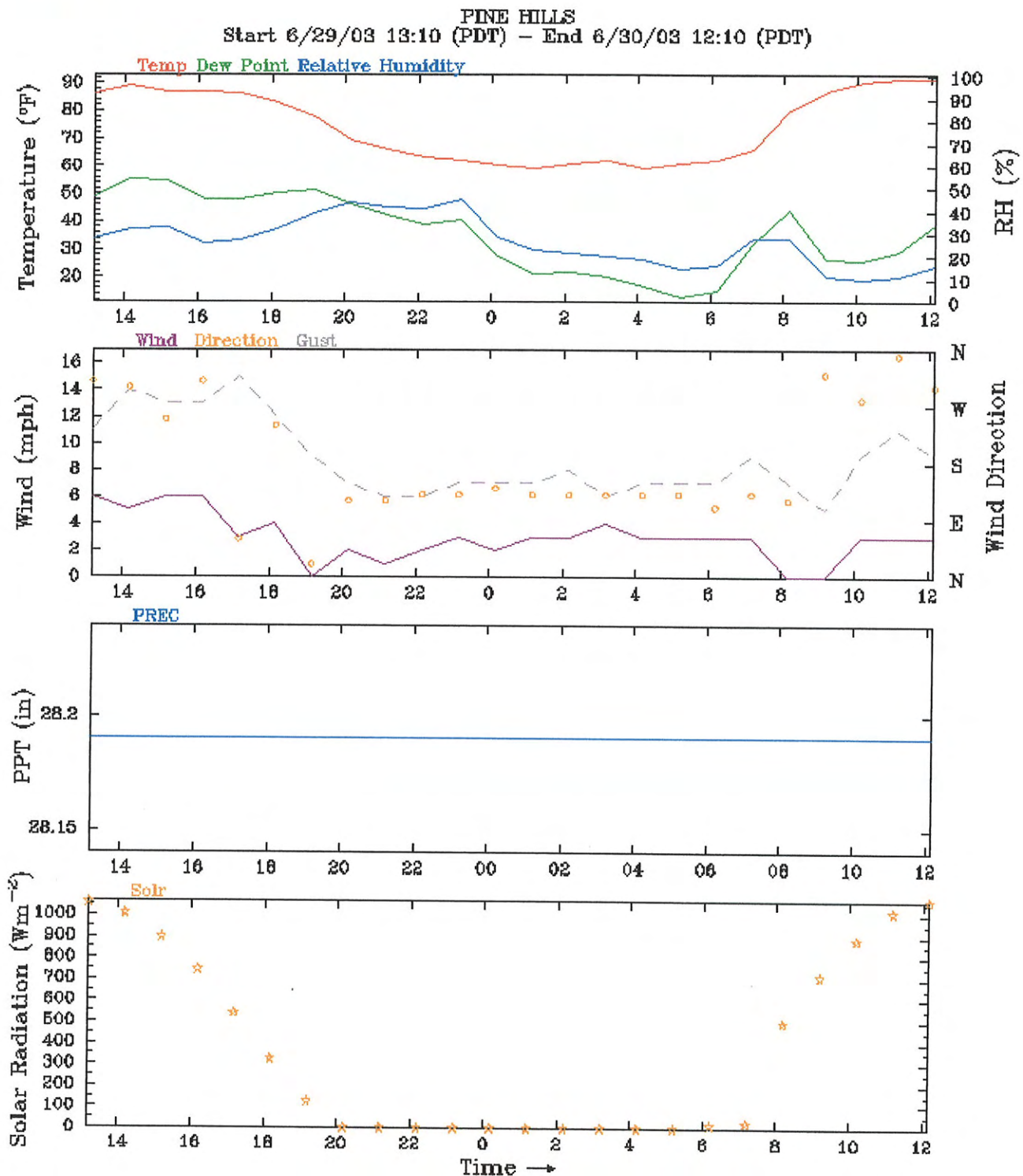
[Station Information](#)

[Restrictions](#)

[Data in Spreadsheet Format](#)

DATA COURTESY OF
[Bureau of Land Management](#)
and
[USDA Forest Service](#)

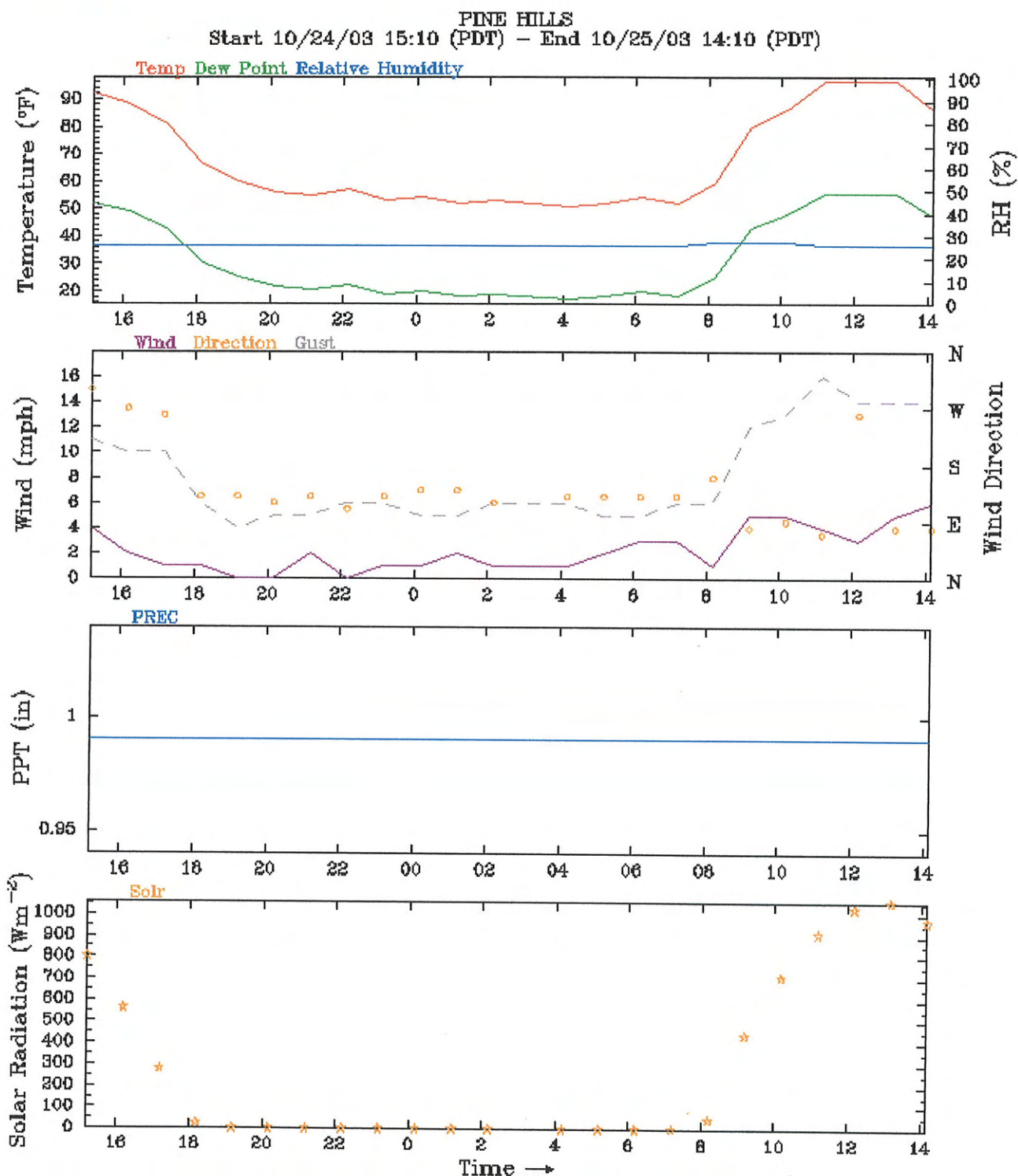
Select Previous Periods: [12 Hours](#) [24 Hours](#) [2 Days](#) [5 Days](#) [7 Days](#) [10 Days](#) [30 Days](#)
[Hodograph](#)



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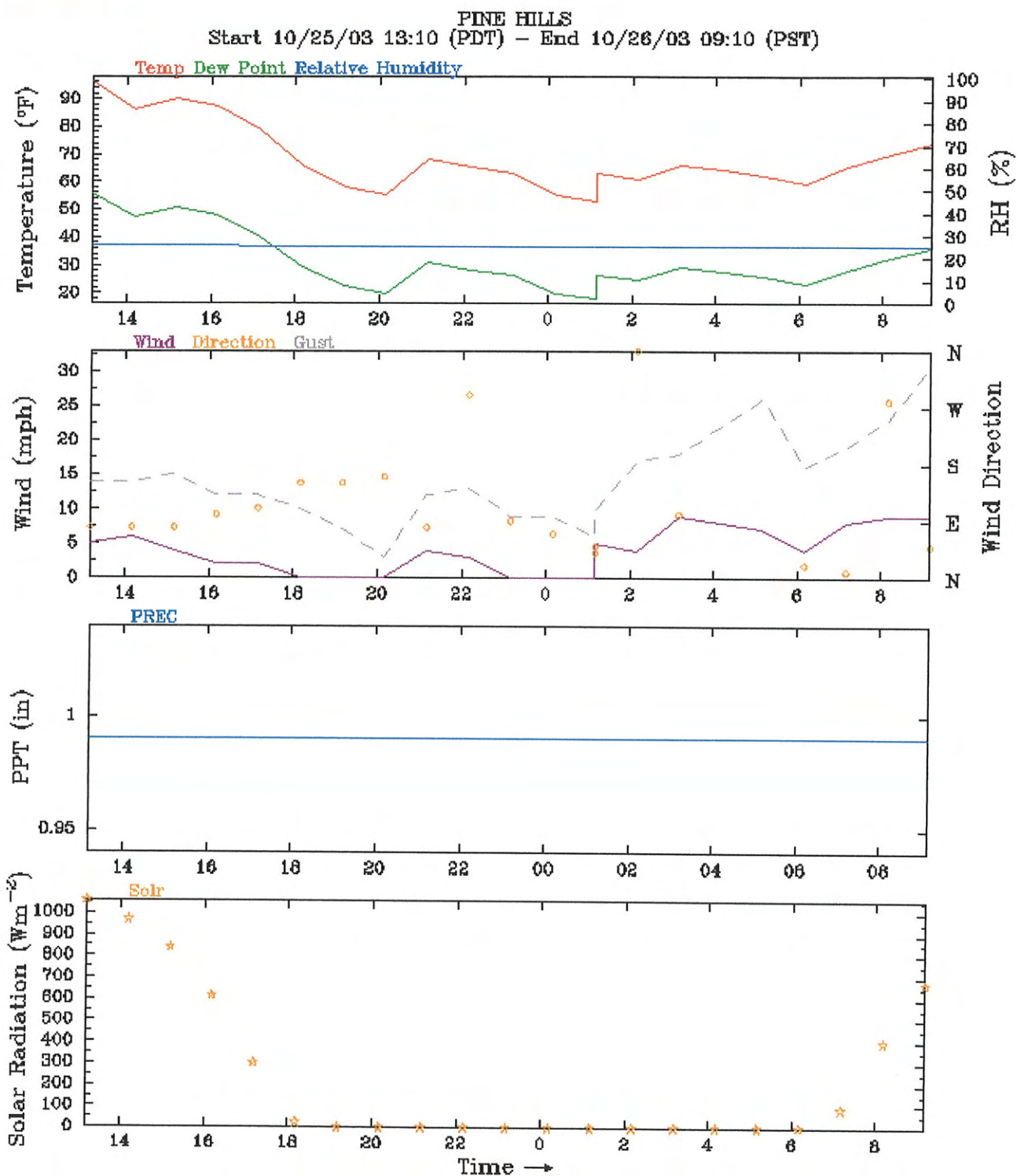
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Past Weather Conditions for PIHC1

Observations prior to selected time: June 30, 2003 - 13:00 PDT

Weather Conditions at June 30, 2003 - 12:10 PDT

	12:10	24 Hour Max	24 Hour Min
Temperature	91.0° F	91.0 at 11:10	59.0 at 1:10
Dew Point	38.5° F	55.3 at 14:10	13.0 at 5:10
Relative Humidity	16%	45 at 23:10	10 at 10:10
Wind Speed	3 mph from WNW	6 at 13:10	0 at 19:10
Wind Gust	9 mph	15 at 17:10	5 at 9:10
Solar Radiation	1066.0 W/m*m	1066.0 at 12:10	0.0 at 20:10
Fuel Temperature	104.0° F	104.0 at 11:10	56.0 at 4:10

Precipitation accumulated since midnight: 0.00", in 24 hours: 0.00"

Tabular Listing: June 29, 2003 - 13:00 through June 30, 2003 - 13:00 PDT

Time(PDT)	Temperature ° F	Dew Point ° F	Relative Humidity %	Wind Speed mph	Wind Gust mph	Wind Direction	Quality control	Solar Radiation W/m*m	Precipitation accumulated in	Fuel Temperature ° F
12:10	91.0	38.5	16	3	9	WNW	Caution	1066.0	28.19	104.0
11:10	91.0	29.2	11	3	11	N	Caution	1012.0	28.19	104.0
10:10	90.0	26.1	10	3	9	W	Caution	884.0	28.19	101.0
9:10	87.0	26.1	11	0	5	NW	Caution	710.0	28.19	97.0
8:10	80.0	43.9	28	0	7	ESE	Caution	495.0	28.19	87.0
7:10	66.0	32.0	28	3	9	SE	Caution	25.0	28.19	62.0
6:10	62.0	15.3	16	3	7	ESE	Caution	13.0	28.19	59.0
5:10	61.0	13.0	15	3	7	SE	Caution	0.0	28.19	57.0
4:10	59.0	16.8	19	3	7	SE	Caution	0.0	28.19	56.0
3:10	62.0	20.5	20	4	6	SE	Caution	0.0	28.19	59.0
2:10	61.0	21.9	22	3	8	SE	Caution	0.0	28.19	58.0
1:10	59.0	21.3	23	3	7	SE	Caution	0.0	28.19	58.0
0:10	60.0	27.7	29	2	7	SE	OK	0.0	28.19	57.0
23:10	62.0	40.4	45	3	7	SE	OK	0.0	28.19	61.0
22:10	63.0	38.9	41	2	6	SE	OK	0.0	28.19	61.0
21:10	66.0	42.2	42	1	6	ESE	OK	0.0	28.19	64.0
20:10	69.0	46.2	44	2	7	ESE	OK	0.0	28.19	67.0
19:10	78.0	51.0	39	0	9	NNE	OK	123.0	28.19	81.0
18:10	83.0	50.1	32	4	12	WSW	OK	323.0	28.19	86.0
17:10	86.0	48.1	27	3	15	ENE	OK	539.0	28.19	93.0
16:10	87.0	47.9	26	6	13	NW	OK	741.0	28.19	94.0
15:10	87.0	54.4	33	6	13	WSW	OK	894.0	28.19	98.0
14:10	89.0	55.3	32	5	14	WNW	OK	1005.0	28.19	102.0
13:10	86.0	49.1	28	6	11	NW	OK	1056.0	28.19	101.0

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Past Weather Conditions for PIHC1

Observations prior to selected time: October 25, 2003 - 15:00 PDT

Weather Conditions at October 25, 2003 - 14:10 PDT

	14:10	24 Hour Max	24 Hour Min
Temperature	86.0° F	96.0 at 11:10	51.0 at 4:10
Dew Point	47.1° F	55.5 at 11:10	17.3 at 4:10
Relative Humidity	26%	27 at 8:10	26 at 15:10
Wind Speed	6 mph from E	6 at 14:10	0 at 19:10
Wind Gust	14 mph	16 at 11:10	4 at 19:10
Solar Radiation	968.0 W/m*m	1057.0 at 13:10	0.0 at 19:10
Fuel Temperature	85.0° F	87.0 at 12:10	53.0 at 4:10

Precipitation accumulated since midnight: 0.00", in 24 hours: 0.00"

Tabular Listing: October 24, 2003 - 15:00 through October 25, 2003 - 15:00 PDT

Time(PDT)	Temperature ° F	Dew Point ° F	Relative Humidity %	Wind Speed mph	Wind Gust mph	Wind Direction	Quality control	Solar Radiation W/m*m	Precipitation accumulated in	Fuel Temperature ° F
14:10	86.0	47.1	26	6	14	E	Caution	968.0	0.99	85.0
13:10	96.0	55.5	26	5	14	E	Caution	1057.0	0.99	86.0
12:10	96.0	55.5	26	3	14	W	OK	1027.0	0.99	87.0
11:10	96.0	55.5	26	4	16	ENE	OK	909.0	0.99	86.0
10:10	86.0	48.1	27	5	13	E	OK	710.0	0.99	82.0
9:10	80.0	43.0	27	5	12	E	OK	440.0	0.99	79.0
8:10	59.0	25.1	27	1	6	SSE	OK	47.0	0.99	62.0
7:10	52.0	18.2	26	3	6	SE	OK	2.0	0.99	55.0
6:10	54.0	19.9	26	3	5	SE	OK	0.0	0.99	59.0
5:10	52.0	18.2	26	2	5	SE	OK	0.0	0.99	54.0
4:10	51.0	17.3	26	1	6	SE	OK	0.0	0.99	53.0
2:10	53.0	19.0	26	1	6	ESE	OK	0.0	0.99	56.0
1:10	52.0	18.2	26	2	5	SE	OK	0.0	0.99	55.0
0:10	54.0	19.9	26	1	5	SE	OK	0.0	0.99	57.0
23:10	53.0	19.0	26	1	6	SE	OK	0.0	0.99	56.0
22:10	57.0	22.5	26	0	6	ESE	OK	0.0	0.99	60.0
21:10	55.0	20.8	26	2	5	SE	OK	0.0	0.99	58.0
20:10	56.0	21.6	26	0	5	ESE	OK	0.0	0.99	59.0
19:10	60.0	25.0	26	0	4	SE	OK	0.0	0.99	61.0
18:10	66.0	30.1	26	1	6	SE	OK	24.0	0.99	68.0
17:10	81.0	42.9	26	1	10	W	Caution	279.0	0.99	81.0
16:10	88.0	48.8	26	2	10	W	Caution	561.0	0.99	85.0
15:10	92.0	52.2	26	4	11	WNW	Caution	800.0	0.99	85.0

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Past Weather Conditions for CMNC1

Observations prior to selected time: October 26, 2003 - 14:00 PST

Weather Conditions at October 26, 2003 - 14:00 PST

	14:00	24 Hour Max	24 Hour Min
Temperature	73.0° F	85.0 at 15:00	56.0 at 1:00
Dew Point	-6.5° F	9.8 at 22:00	-6.5 at 13:00
Relative Humidity	4%	14 at 1:00	4 at 13:00
Wind Speed	15 mph from NE	24 at 13:00	0 at 0:00
Wind Gust	37 mph	55 at 13:00	7 at 22:00
Solar Radiation	557.0 W/m*m	676.0 at 13:00	0.0 at 18:00
Fuel Temperature	80.0° F	93.0 at 15:00	49.0 at 1:00

Precipitation accumulated since midnight: 0.00", in 24 hours: 0.00"

Tabular Listing: October 25, 2003 - 15:00 through October 26, 2003 - 14:00 PST

Time(PST)	Temperature ° F	Dew Point ° F	Relative Humidity %	Wind Speed mph	Wind Gust mph	Wind Direction	Quality control	Solar Radiation W/m*m	Precipitation accumulated in	Fuel Temperature ° F
14:00	73.0	-6.5	4	15	37	NE	OK	557.0	2.79	80.0
13:00	73.0	-6.5	4	24	55	NE	OK	676.0	2.79	79.0
9:00	71.0	-3.3	5	21	31	NE	OK	572.0	2.79	73.0
8:00	70.0	-0.2	6	14	23	NE	OK	393.0	2.79	71.0
7:00	66.0	0.2	7	12	17	NE	OK	154.0	2.79	66.0
6:00	64.0	-1.3	7	8	19	NE	OK	0.0	2.79	63.0
5:00	67.0	-2.4	6	11	22	NE	OK	0.0	2.79	63.0
4:00	69.0	-0.9	6	10	28	NE	OK	0.0	2.79	65.0
3:00	68.0	-1.6	6	14	29	NE	OK	0.0	2.79	68.0
2:00	69.0	2.4	7	13	24	NE	OK	0.0	2.79	68.0
1:00	68.0	7.1	9	5	17	NE	OK	0.0	2.79	64.0
1:00	56.0	7.5	14	1	7	N	OK	0.0	2.79	49.0
0:00	58.0	5.7	12	0	11	WNW	OK	0.0	2.79	52.0
23:00	68.0	7.1	9	3	14	NNE	OK	0.0	2.79	63.0
22:00	61.0	9.8	13	2	7	E	OK	0.0	2.79	54.0
21:00	58.0	7.5	13	4	10	NNE	OK	0.0	2.79	53.0
20:00	67.0	8.7	10	4	12	NE	OK	0.0	2.79	62.0
19:00	71.0	9.4	9	5	16	NE	OK	0.0	2.79	69.0
18:00	74.0	9.0	8	6	18	NE	OK	0.0	2.79	71.0
17:00	80.0	7.0	6	8	23	NE	Caution	17.0	2.79	84.0
16:00	82.0	8.4	6	11	22	NE	Caution	359.0	2.79	90.0
15:00	85.0	6.5	5	12	24	NE	Caution	546.0	2.79	93.0

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Past Weather Conditions for PIHC1

Observations prior to selected time: October 26, 2003 - 12:00 PST

Weather Conditions at October 26, 2003 - 9:10 PST

	9:10	24 Hour Max	24 Hour Min
Temperature	74.0° F	96.0 at 13:10	53.0 at 1:10
Dew Point	35.9° F	55.5 at 13:10	18.1 at 1:10
Relative Humidity	25%	26 at 13:10	25 at 17:10
Wind Speed	9 mph from NE	9 at 3:10	0 at 18:10
Wind Gust	31 mph	31 at 9:10	3 at 20:10
Solar Radiation	673.0 W/m*m	1057.0 at 13:10	0.0 at 19:10
Fuel Temperature	69.0° F	86.0 at 13:10	59.0 at 20:10

Precipitation accumulated since midnight: 0.00", in 24 hours: 0.00"

Tabular Listing: October 25, 2003 - 13:00 through October 26, 2003 - 12:00 PST

Time(PST)	Temperature ° F	Dew Point ° F	Relative Humidity %	Wind Speed mph	Wind Gust mph	Wind Direction	Quality control	Solar Radiation W/m*m	Precipitation accumulated in	Fuel Temperature ° F
9:10	74.0	35.9	25	9	31	NE	OK	673.0	0.99	69.0
8:10	70.0	32.6	25	9	23	W	OK	400.0	0.99	67.0
7:10	65.0	28.3	25	8	19	N	OK	87.0	0.99	67.0
6:10	59.0	23.2	25	4	16	NNE	OK	3.0	0.99	63.0
5:10	62.0	25.8	25	7	26		OK	0.0	0.99	63.0
4:10	64.0	27.5	25	8	22		OK	0.0	0.99	65.0
3:10	66.0	29.2	25	9	18	E	OK	0.0	0.99	68.0
2:10	61.0	24.9	25	4	17	N	OK	0.0	0.99	64.0
1:10	63.0	26.6	25	5	10	NE	OK	0.0	0.99	66.0
1:10	53.0	18.1	25	0	6	NE	OK	0.0	0.99	59.0
0:10	55.0	19.8	25	0	9	ENE	OK	0.0	0.99	59.0
23:10	63.0	26.6	25	0	9	E	OK	0.0	0.99	67.0
22:10	65.0	28.3	25	3	13	WNW	OK	0.0	0.99	70.0
21:10	68.0	30.9	25	4	12	E	OK	0.0	0.99	71.0
20:10	55.0	19.8	25	0	3	SSE	OK	0.0	0.99	59.0
19:10	58.0	22.4	25	0	7	SSE	OK	0.0	0.99	64.0
18:10	66.0	29.2	25	0	10	SSE	Caution	21.0	0.99	69.0
17:10	79.0	40.2	25	2	12	ESE	Caution	300.0	0.99	82.0
16:10	87.0	47.9	26	2	12	E	Caution	613.0	0.99	84.0
15:10	90.0	50.5	26	4	15	E	Caution	839.0	0.99	84.0
14:10	86.0	47.1	26	6	14	E	Caution	968.0	0.99	85.0
13:10	96.0	55.5	26	5	14	E	Caution	1057.0	0.99	86.0

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5. Enhanced Fire Resistive Eave Construction Requirements



GUIDANCE DOCUMENT IGNITION RESISTANT EAVE CONSTRUCTION

Since the 1980s, the County's fire and building codes have been strengthened in successive code adoption cycles with the primary goal of protecting the safety of our citizens and enhancing a home's ability to survive a wildfire. Although such measures protected many homes located within the areas impacted by the 2003 Cedar/Paradise Fire, analysis of the burned homes identified areas where we could improve our codes; one of these areas is eave construction.

Winds in wildfires carry huge amounts of burning embers, swirling into cracks and crevices, igniting anything that is combustible. Eaves, because they are perpendicular to the wall, tend to capture blowing embers. Eave vents, which are designed to move air in and out of the attic, give opportunity for embers to ignite soffit material or enter attic areas. Once a fire starts in an attic, it goes undetected for some time and is very difficult to stop even under ideal conditions.

As a result, improvements were made to the County's building and fire codes to establish a series of permissible ignition resistant eave construction details. To determine what detail will be permitted on your structure, you must first determine whether you are subject to the "Basic" or "Enhanced" fire-resistive construction requirements of the code.

- **"Basic"** fire-resistive construction requirements are applied to all buildings that are located within the Wildland Urban Interface area. The Wildland-Urban Interface is an area where combustible vegetation increases the possibility of a vegetation conflagration – uncontrolled fire spreading through vegetation fuels, exposing and consuming structures in the advancing path of flame.
- **"Enhanced"** fire-resistive construction requirements are applied to all buildings that are located within the Wildland Urban Interface area and where 100' clearance around all structures cannot be achieved on the parcel, or where steep terrain or other special circumstances create additional hazard, or there is the presence of high fuel loads.

Once you have determined what construction tier applies to your project, consult the attached Ignition Resistant Eave Construction chart for a listing of the different types of eave construction that will be permitted for your structure. For every eave description in the chart there is a corresponding detail attached. In addition, each detail can be downloaded individually in AutoCAD DWG file format at: <http://www.co.san-diego.ca.us/dplu/bldgforms/index.html>.

While these standards will provide a high level of protection to structures built in the wildland/urban interface area; there is no guarantee or assurance that compliance with these standards will prevent damage or destruction of structures by fire in all cases. For more information on eave construction or other fire code requirements, please refer to the County's Wildland-Urban Interface – 2004 Code Changes summary document (DPLU #664) or contact the County's Building Department, Fire Services Division at (858) 565-5920.



IGNITION RESISTANT EAVE CONSTRUCTION

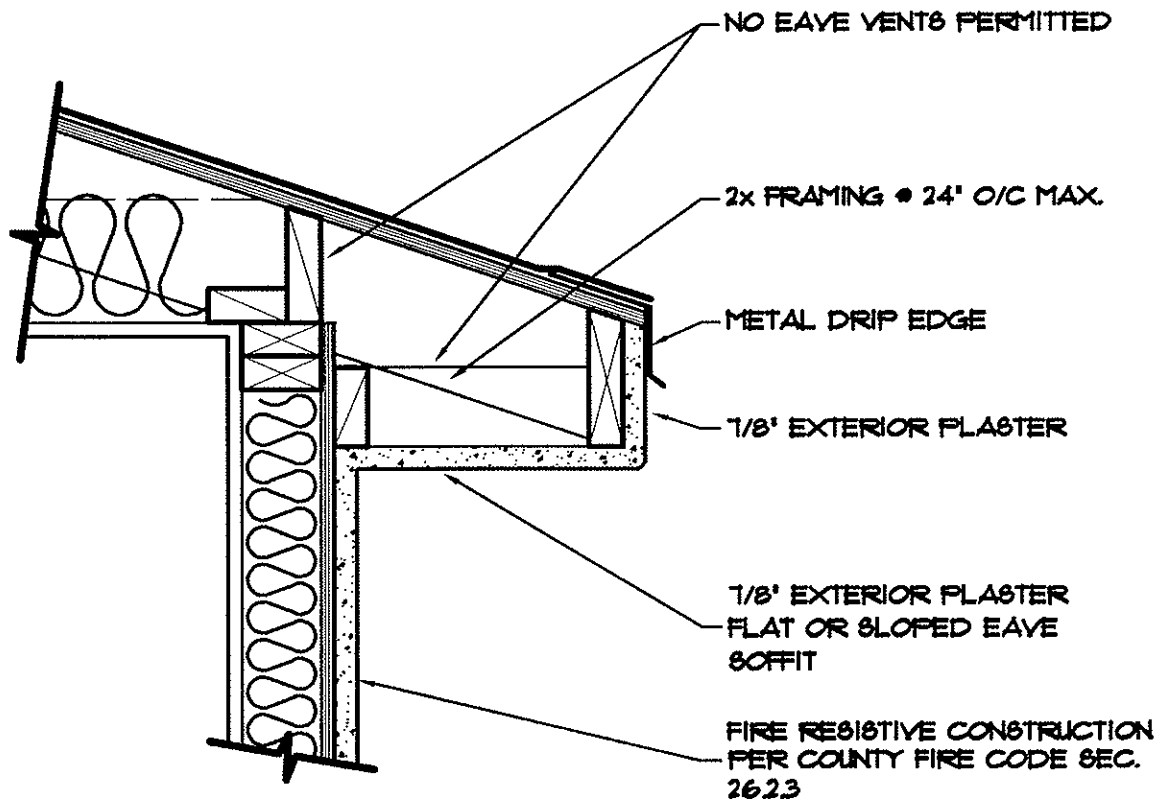
#	EAVE CONSTRUCTION DESCRIPTION	BASIC		ENHANCED	
		Eave Allowed?	Vent Allowed?	Eave Allowed?	Vent Allowed?
1	Stucco Soffit with Fascia Protected. Horizontal soffit or angled overhang and 2x fascia enclosed with 7/8" Portland cement plaster	Y	Y ¹	Y	N
2	Stucco Soffit with Fascia Exposed. Horizontal soffit or angled overhang with 7/8" Portland cement plaster, exposed 2x fascia	Y	Y ¹	NOT PERMITTED	
3	Foam Trim with Stucco. 7/8" Portland cement plaster with foam trim over brown coat and enclosed with color coat	Y	N	Y	N
4	Heavy Timber. Exposed rafter tails (4 x 6 or larger), supporting 2" T&G roof decking (If fascia is used it must be 3 x 6 or larger)	Y	N	Y	N
5	Exposed Wood with Drywall Underlayment. Soffit enclosed with 1/2" Type X gypsum wallboard under 1x smooth finished starterboard, tight-fitting or caulked. 2x fascia.	Y	Y ¹	NOT PERMITTED	
6	Wood Soffit, Fascia Exposed, with Fire-Resistive Underlayment. 2x wood fascia as plant-on over 5/8" Type X gypsum wallboard or 7/8" Portland cement plaster or 2-2x wood blocking. Soffit may be constructed of combustible material with a 5/16" minimum thickness over 5/8" Type X gypsum wallboard or 7/8" Portland cement plaster.	Y	Y ¹	Y	N
7	Cementitious Siding on Soffit and as Underlayment Behind Fascia. 5/16" min. thickness non-combustible cementitious siding on soffit. 2x wood fascia installed over backing of cementitious siding backing or other backing as approved in detail #6.	Y	Y ¹	Y	N
8	Cementitious Siding on Soffit 5/16" min. thickness non-combustible cementitious siding – 2x fascia without underlayment	Y	Y ¹	NOT PERMITTED	
9	Enclosed Eave with Exposed Wood. Enclosed eave with solid combustible materials (wood) 3/4 inch thickness – no exposed rafter tails. All joints must be tight fitting and gaps caulked.	Y	Y ¹	NOT PERMITTED	
10	Open Eave with Exposed Wood. 2x rafter tails with 2x blocking, and 1x exterior grade starterboard or 1/2" CCX plywood. All joints must be tight fitting and gaps caulked.	Y	Y ¹	NOT PERMITTED	

¹ Vents are permitted in the eave assembly of Basic Fire-Resistive Construction only under the following conditions:

- When allowed by the Fire Authority Having Jurisdiction, on eaves that do not face the wildland fuels; or,
- Enclosed eaves may be vented on the underside of the eave closest to the fascia provided the closest edge of the vent opening is at least 12 inches from the exterior wall.



GUIDANCE DOCUMENT IGNITION RESISTANT EAVES



DATE: 3-21-2005

SCALE: NONE

FORM: DPLU #198

DETAIL 1 - ENHANCED

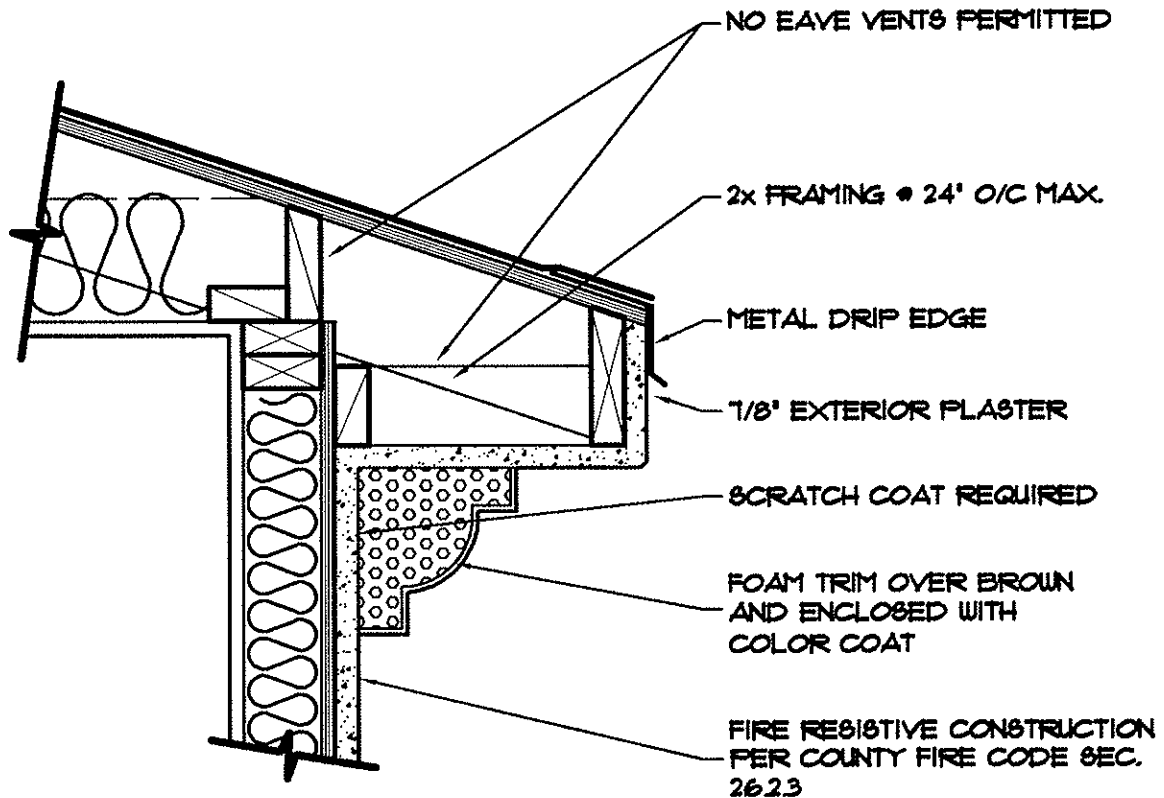
4

OF 15 SHEETS

STUCCO SOFFIT WITH FASCIA PROTECTED



GUIDANCE DOCUMENT IGNITION RESISTANT EAVES



DATE: 3-21-2005

SCALE: NONE

FORM: DPLU #198

DETAIL 3 - BASIC / ENHANCED

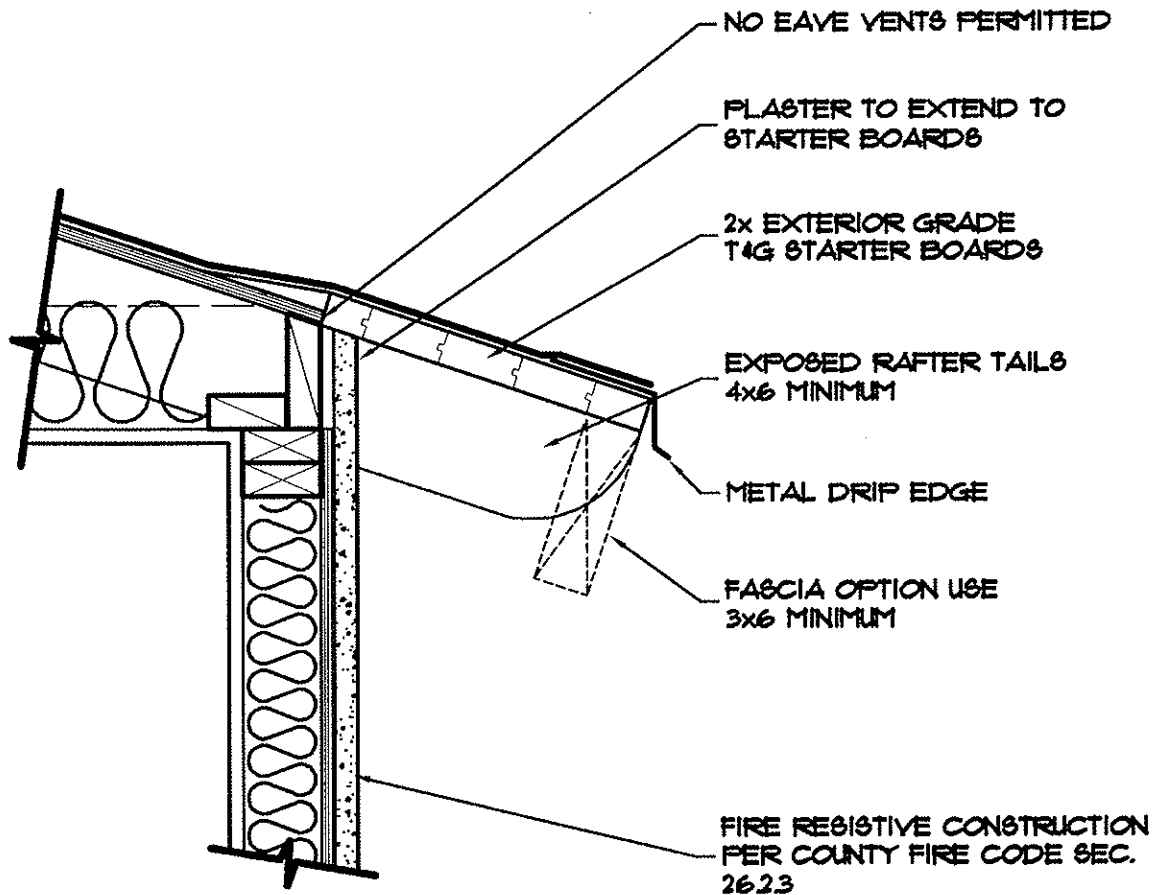
6

OF 15 SHEETS

FOAM TRIM WITH STUCCO



GUIDANCE DOCUMENT IGNITION RESISTANT EAVES



DATE: 3-21-2005

SCALE: NONE

FORM: DPLU #198

DETAIL 4 - BASIC / ENHANCED

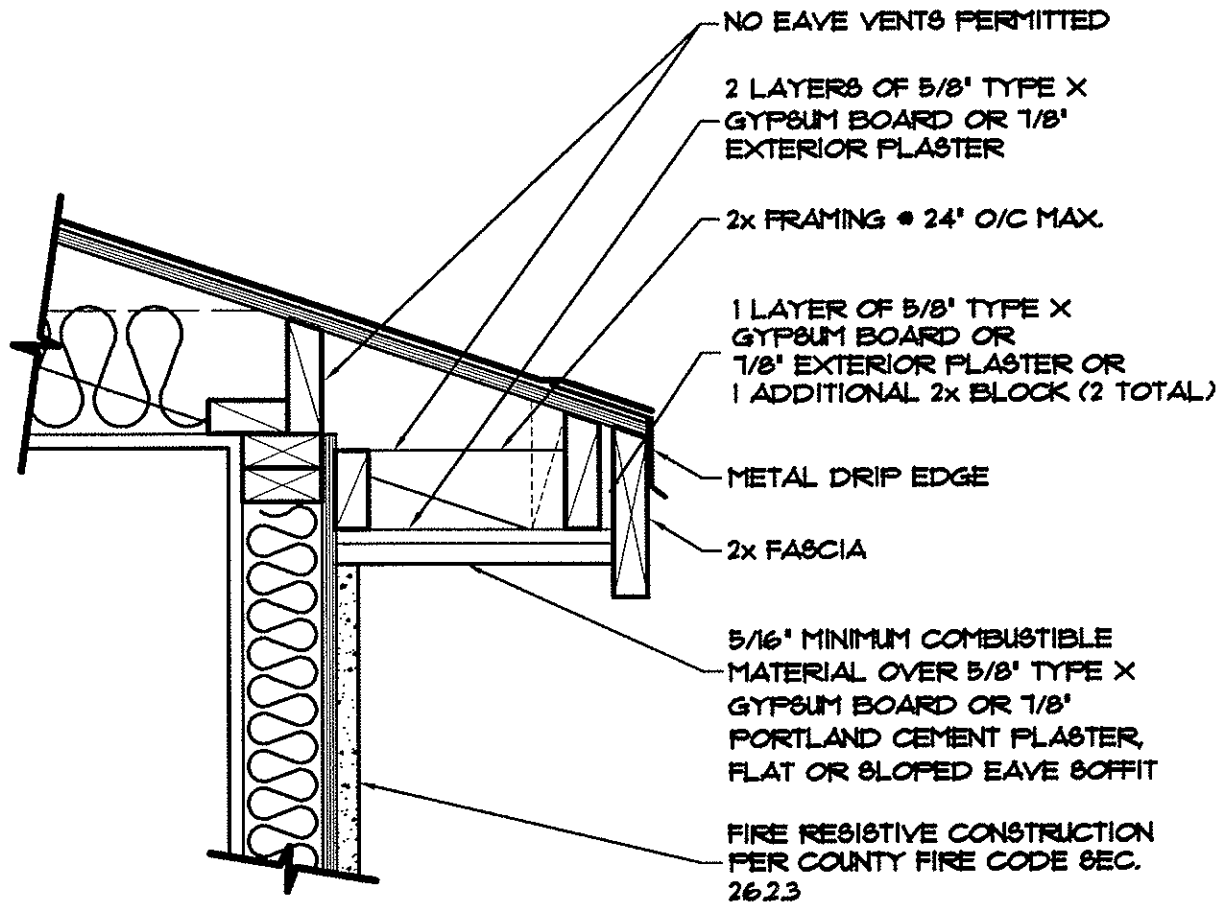
7

OF 15 SHEETS

HEAVY TIMBER



GUIDANCE DOCUMENT IGNITION RESISTANT EAVES



DATE: 3-21-2005

SCALE: NONE

FORM: DPLU #198

10

OF 15 SHEETS

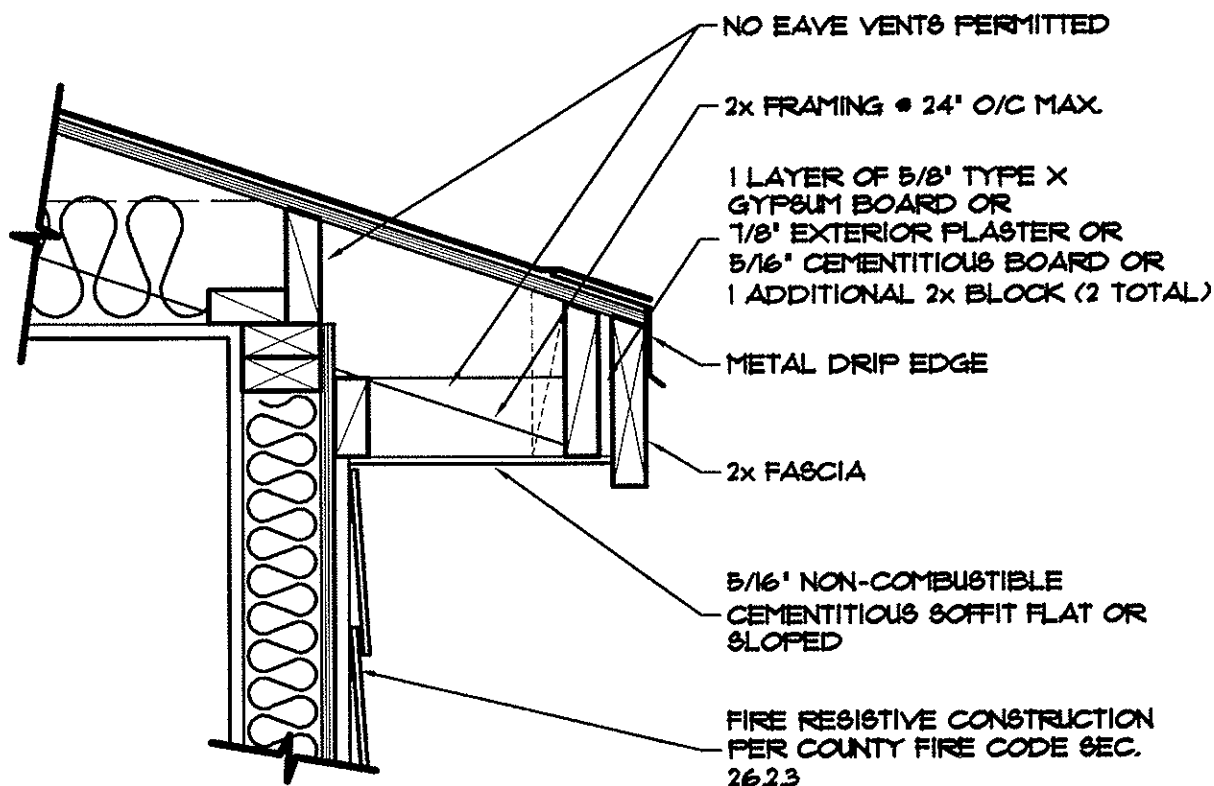
DETAIL 6 - ENHANCED

WOOD SOFFIT FASCIA EXPOSED WITH
FIRE RESISTIVE UNDERLAYMENT



GUIDANCE DOCUMENT IGNITION RESISTANT EAVES

NOTE: ALL JOINTS MUST BE TIGHT FITTING AND CAULKED



DATE: 3-21-2005

SCALE: NONE

FORM: DPLU #198

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OF 15 SHEETS

DETAIL 7 - ENHANCED

**CEMENTITIOUS SIDING ON SOFFIT AND AS
UNDERLAYMENT BEHIND FASCIA**